WEST ISLES FEASIBILITY STUDY

A STUDY TO ASSESS THE FEASIBILITY OF
ESTABLISHING A NATIONAL MARINE PARK
IN THE WEST ISLES AREA OF
THE BAY OF FUNDY, NEW BRUNSWICK

TASK REPORT

Parks Canada Parcs Canada

Tourism New Brunswick Tourisme Nouveau-Brunswick

RECOMMENDED RESOURCE MANAGEMENT GUIDELINES FOR THE PROPOSED NATIONAL MARINE PARK IN THE WEST ISLES, NEW BRUNSWICK

WEST ISLES FEASIBILITY STUDY

PARKS CANADA/TOURISM NEW BRUNSWICK

DECEMBER 1985

FOREWORD

The West Isles Feasibility Study was initiated by the federal Minister of the Environment responsible for Parks Canada and the New Brunswick Minister of Tourism in November, 1983. The purpose of the study is to assess the feasibility of establishing a national marine park in the West Isles area of the Bay of Fundy.

The West Isles Feasibility Study is being conducted in three phases. Phase I is an assessment of the technical feasibility of establishing a national marine park in the West Isles area, from the perspective of Parks Canada and Tourism New Brunswick. If Ministers decide to proceed with the study, Phase II would involve extensive public consultation to provide the local public with the opportunity to become directly involved in the process to decide whether or not the West Isles proposal is feasible. The purpose of Phase III would be to analyse the results of the two preceeding phases, and to prepare a final report based on the findings, with recommendations for a future course of action.

In the process of completing Phase I, nine individual studies were conducted to investigate specific aspects of the feasibility assessment, all of which are summarized in the Phase I report. These nine studies include the following:

1. Recommended Resource Management Guidelines
2. Institutional and Administrative Arrangements
3. Optional Visitor Use Concepts
4. Transportation Analysis
5. Tourism Development Plan
6. Socio-Economic Impact Study
7. Historical/Archaeological Concerns and Opportunities
8. Land Ownership Inventory
9. Analysis and Summary of Public Comments

Copies of the above reports are available upon request from the following addresses:

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Recreation and Heritage*
P.O. Box 12345
Fredericton, New Brunswick
E3B 5C3
Phone: (506) 453-2624

Parks Canada
10 Wellington Street
Hull, Quebec
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* Throughout this report the former title Tourism New Brunswick has been used. The correct title is now the Department of Tourism, Recreation and Heritage.

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RECOMMENDED RESOURCE MANAGEMENT GUIDELINES FOR THE PROPOSED WEST ISLES NATIONAL MARINE PARK

1.0 INTRODUCTION

In the past, Parks Canada has exercised its mandate across Canada to preserve and protect representative examples of this country's diverse natural heritage, and to manage them to provide for their appreciation, understanding and enjoyment by all Canadians for all time. Until recently, this mandate was confined to establishing National Parks on land, but the 1979 National Parks Policy, approved by Cabinet, recognized the need to broaden this scope to include Canada's marine environment.

While four National Parks in Canada do contain small marine components, the proposal to establish a national marine park in the West Isles area of southwestern New Brunswick represents the first initiative by Parks Canada to exercise this new mandate. Preceeded by an initial Pilot Study, the West Isles Feasibility Study was embarked upon in 1983 (see Figures 1 and 2).

The Recommended Resource Management Guidelines embodied in this report were generated as part of this study to determine the feasibility of establishing a national marine park in the West Isles. Of the many criteria being considered in the assessment of feasibility, this report assesses only those criteria relating to natural resource management. In this regard, it is necessary

Figure 1 MARINE NATURAL AREAS OF CANADIAN SIGNIFICANCE IN THE BAY OF FUNDY

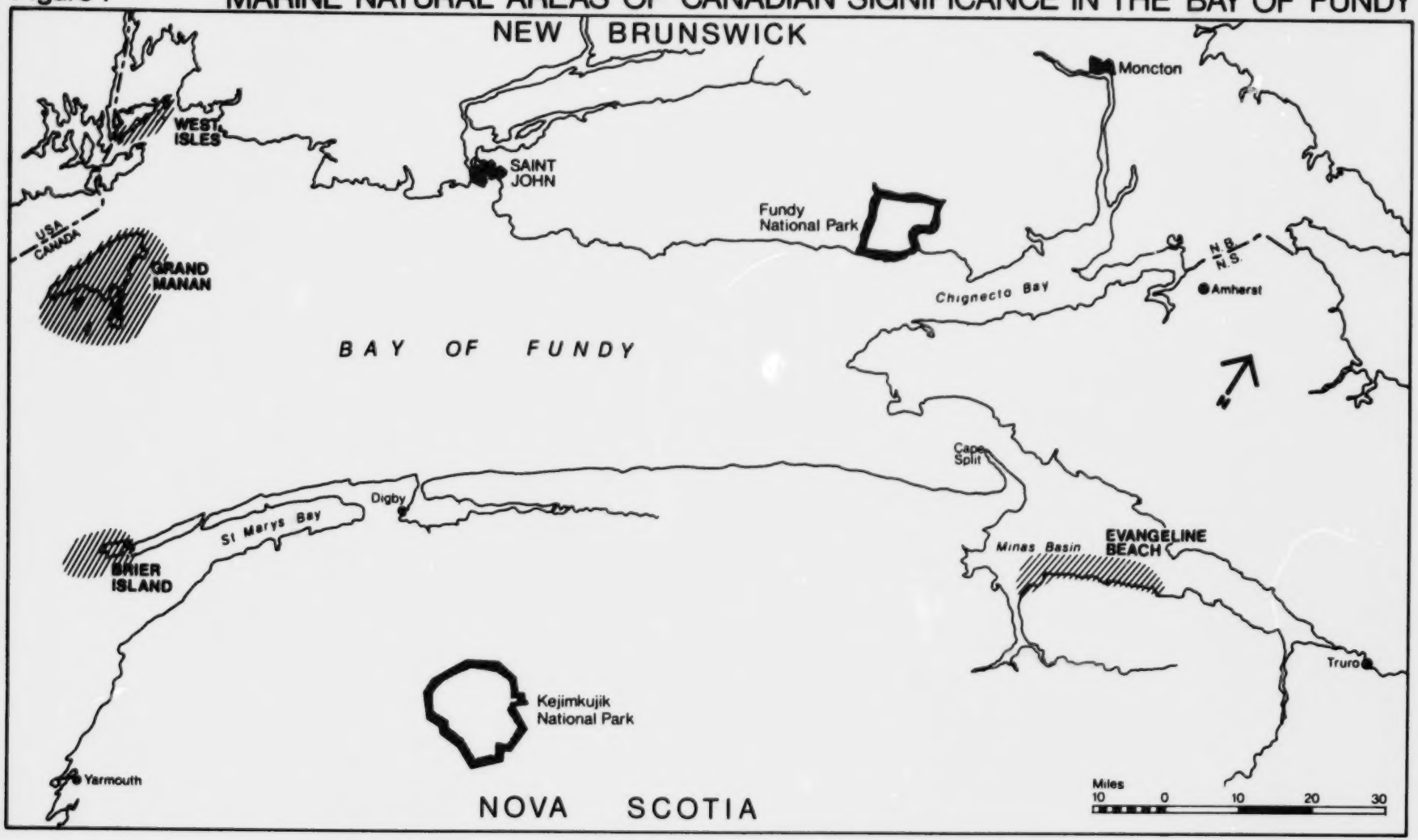

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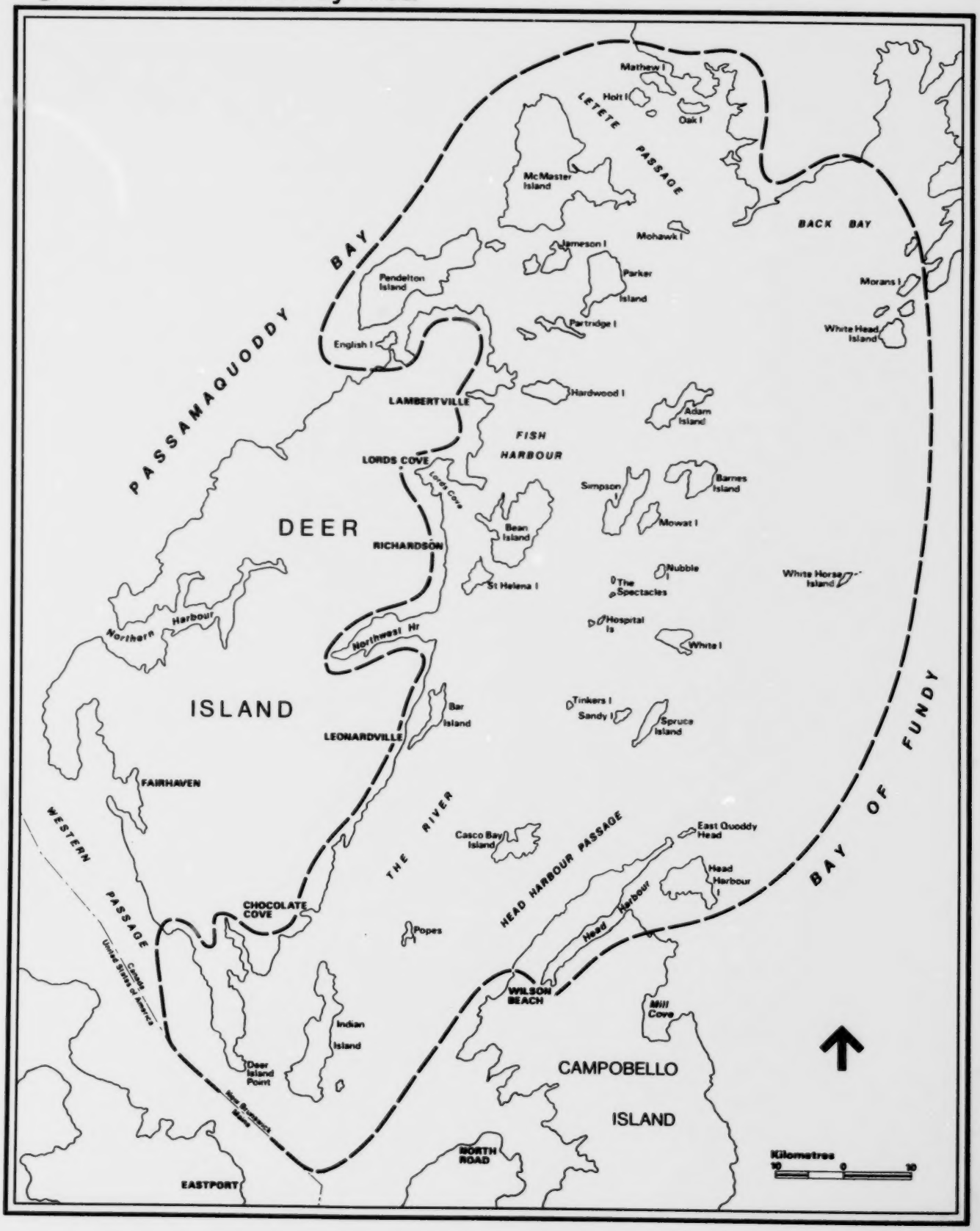
Figure 2 West Isles Study Area



from the outset to recognize two fundamental differences between marine parks and terrestrial parks.

Firstly, by the very nature of marine parks, they are composed primarily of water and, as such, constitute a highly mobile environment. Marine park boundaries cannot "contain" an environment as can terrestrial parks where the control of impacts from external influences may be easier to apply and the results more visible. Consequently, where management efforts in terrestrial parks can have direct and longstanding results, effective in preserving those environments, this may not be possible in some cases in marine parks. The draft National Marine Parks Policy (Section 2.0) recognizes, therefore, that the "concepts of preservation applied in terrestrial park environments have limited application in the protection of marine resources ..." However, conservation of renewable marine resources and protection of critical portions of species' habitats is possible, and will benefit those coastal communities which are dependent upon them." The management philosophy of conservation, as opposed to preservation, allows greater flexibility in the uses of renewable resources. A definition of conservation, as adopted from the World Conservation Strategy as a general principle for national marine park management, follows in Section 1.2.

In recognition of this principle, the policy (Section 2.0) also states that "those traditional uses of renewable marine resources which are compatible with the requirement to conserve ecosystems, genetic diversity, and the natural processes upon which they

depend will be permitted in marine parks. However, such activities must not destroy or seriously impair the natural values for which the park was established". This approach is consistent with that of the Department of Fisheries and Oceans in its management of commercial fisheries.

The second fundamental difference between marine and terrestrial parks is the extent to which Parks Canada requires the management assistance of other government agencies. In terrestrial parks, Parks Canada is virtually the sole agency responsible for National Park management. In the marine environment, however, due both to the dynamic nature of marine ecosystems and to the wide variety of resource related activities that take place on, in, or adjacent to it, there are several government agencies involved in marine resource management. It is Parks Canada's intent to co-operate with these agencies to encourage compatible coastal and marine resource use both in and adjacent to marine parks. In this regard the draft National Marine Parks Policy (Background) states:

> Marine parks will normally be owned by Canada and protected and conserved under the National Parks Act (1974). Although the administration, management and control of many resources in national marine parks shall be under the direction of the Minister responsible for the National Parks Act, the administration and control of fisheries, fish resources, navigation and shipping will remain with the federal or provincial ministers presently responsible for their

regulation, according to agreements entered into at the time of marine park establishment.

A particularly close working relationship will therefor be necessary with the Departments of Fisheries and Oceans and Transport.

In addition, since traditional uses of renewable resources, commercial fishing in particular, will be permitted in marine parks, Parks Canada wishes to involve those working in these activities in the process of making park planning and management decisions. Their advice and consultation is recognized as a invaluable tool to assist in making decisions to our mutual benefit. In that regard, the following recommendations include a proposal to create a national marine park Public Consultation Committee, which would include representation from the local fishing industry.

1.1 The Purpose of this Report

The following Recommended Resource Management Guidelines have been prepared to test the feasibility criteria developed at the beginning of the study. The criteria specific to resource protection and conservation follow in Section 1.3. A complete summary of all the Recommended Resource Management Guidelines is contained in Section 2.0. The following section, Section 3.0, includes a discussion of each resource concern and the rationale that led to the formulation of the recommended guidelines, which are repeated following these discussions. Following the

discussion of resource concerns presented in Section 3.0 is the assessment of feasibility carried out by Parks Canada and Tourism New Brunswick. The conclusions of this assessment are based on whether or not Parks Canada's goals and objectives, as reflected in the feasibility criteria, for renewable resource protection and conservation can be achieved.

Resource management guidelines, such as these, are normally prepared after a park has been established and serve to provide guidance for the management and operation of the park until such time as an approved Park Management Plan is completed. In this case, however, these guidelines have been prepared at an early stage in the planning process to enable Parks Canada, Fisheries and Oceans, Tourism New Brunswick and the people of the West Isles to be aware of the resource management implications should a national marine park be established there. Since there are no national marine parks in Canada upon which to rely for practical experience, the formulation of these guidelines has been a considerable learning experience for all parties involved.

It is recognized, therefore, that the guidelines contained herein are subject to review, and revision as required, through due process of consultation with DFO, DOT, other government agencies and representatives of the local public and fishing industry. If agreement amongst all parties can be reached, and the criteria deemed

feasible, the revised guidelines would then stand as a condition of park establishment. If the park is established (there are other feasibility criteria that also must be satisfied), the guidelines would constitute the park's resource management plan until such time as the all encompassing park management planning process is completed. Any changes made to the plan at that time, and as a result of all subsequent reviews (every five years), would be made through due process of consultation.

1.2 A Definition of Conservation

The term conservation can mean many different things to many people. In the context of national marine park management, the following definition of conservation has been adopted by the draft National Marine Park Policy in accordance with the World Conservation Strategy.

Conservation is defined here as: the management of human use of the biosphere so that is may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment. Living resource conservation is specifically concerned with plants, animals and microorganisms, and with those non-living elements of the environment on which they depend. Living resources have two important properties the

combination of which distinguishes them from non-living resources; they are renewable if conserved; and they are destructible if not.

Living resource conservation has three specific objectives:

to maintain essential ecological processes and life-support systems (such as soil regeneration and protection, the recycling of nutrients, and the cleansing of waters), on which human survival and development depend;

To preserve genetic diversity (the range of genetic material found in the world's organisms), on which depend the breeding programmes necessary for the protection and improvement of cultivated plants and domesticated animals, as well as much scientific advance, technical innovation, and the security of the many industries that use living resources;

to ensure the sustainable utilization of species and ecosystems (notably fish and other wildlife, forests and grazing lands), which support millions of rural communities as well as major industries.

(World Conservation Strategy, 1980)

1.3 Feasibility Criteria - Resource Protection/ Conservation

In order to assess whether or not a National Marine Park is feasible in the West Isles area from a resource protection/ conservation viewpoint, the following criteria will be applied: (adapted from the draft National Marine Parks Policy and the World Conservation Strategy)

1. That the long term conservation of the marine resources in the proposed marine park area would be possible so as to maintain ecological processes, diversity, productivity and abundance. (2.1.1*; World Conservation Strategy)

2. That the existence of possible threats to the natural environment of the area, particularly with regard to water quality, are minimal and could be maintained at an acceptable and manageable level. (1.2.2i)

3. That the area has experienced minimum modification by man, or, if significant modification has occurred, has potential for restoration to a natural state. (1.1.1.ii)

4. That the natural resources of the proposed national marine park could be managed so that man's activities will leave them unimpaired for future generations. (2.0.)

*refers to relevant sections of the Draft National Marine Parks Policy (May 1, 1985).

5. The commercial, recreational and domestic fisheries would be able to continue within a national marine park and that any potential conflicts between the fisheries and the purpose and objectives of a national marine park could be resolved to the satisfaction of all parties concerned. (1.3.2; 1.2.2.ii; 2.2.9; 2.3.1; 2.3.6)

6. That sport hunting in the proposed national marine park could be discontinued. (2.2.10.)

7. That commercial fishing practices that are destructive to the sea bed could be minimized. (2.3.6.)

8. That the conservation of all indigenous flora and fauna, and the protection of specific (rare, unique and endangered) resources and habitat critical to their survival could be accomplished within the proposed national marine park. (2.1.2; 2.2.11; 2.3.4; 2.4.4)

9. That the impact of increased visitation to a national marine park in the West Isles on adjacent non-park areas could be minimized to an acceptable and manageable level.

2.0 RECOMMENDED RESOURCE MANAGEMENT GUIDELINES

Protection of Ecologically Sensitive Areas

1) The following areas of high marine diversity should be considered for inclusion in the proposed national marine park (see Figure 3):
   - the area surrounding White Horse Island
   - the area surrounding Sandy and Spruce Islands
   - the area surrounding Adam, Simpson, Barnes and Mowatt Islands
   - the area surrounding Indian Island
   - the shallows north of Hardwood Island to Parker Ledge, Mohawk Island and bounded by Macs, Pendleton and Deer Islands
   - the shoal area around Deer Island Point and up the west side of the point
   - the shoal area on the northeast side of Macs Island
   - the shoal area on the west side of Green Point

2) The following areas known as critical feeding areas for marine mammals, harbour porpoise and fin whales in particular, and for high concentrations of marine birds, should be included in the proposed national marine park (see Figures 4 and 5):
   - Letete Passage
   - Head Harbour Passage north of Pope's Island, out to White Horse Island, west to Spectacle Island and Sandy Island

3) White Horse Island should be included in the proposed national marine park. No landing should

be permitted on the island by the public until a resource management plan can be prepared.

4) The island group of Adams, White, Simpson, Mowatt and Barnes Islands should be obtained for inclusion within the proposed national marine park. Any development should be small scale (i.e., primitive campsites) and consider the sensitivity of the bird nesting and seal haul out areas.

5) Sandy island should be included in the proposed national marine park. Only small scale recreational opportunities should be considered.

6) Egging would not be permitted on islands owned by Parks Canada.

Commercial Resource Harvesting

General Principles

7) Commercial fishing would continue in a national marine park.

8) Commercial fishing in a national marine park would continue to be managed by DFO and regulated under the provisions of the Fisheries Act, and only DFO regulations would be utilized to regulate the fishery.

9) Commerical fishing in a national marine park would be managed in accordance with the regional fisheries management plans prepared by DFO. Parks Canada would not be responsible for the

formulation of species quotas, seasons, or other regulatory mechanisms related to the regional management of fish stocks.

10) A fisheries management plan for the national marine park would be jointly prepared and approved by DFO and Parks Canada, in consultation with the local fishing industry, with specific management guidelines related to park management matters and the interaction between the management and operation of a national marine park and the commercial fishery. This park fisheries management plan would be prepared prior to, and would become a condition of, park establishment.

11) A national marine park Public Consultation Committee, to include representation from the commercial fishing industry, would be established to advise Parks Canada and DFO on any matter relating to park planning, management and operation. Such consultation would not replace or supercede the consultation held by DFO with the fishing industry in the preparation of the regional fisheries management plans.

The Herring Fishery

12) The commercial fishery for herring using traditional weirs, seines, and gill nets would continue within a national marine park, subject to the applicable regulations of DFO. There would be no limits imposed by Parks Canada on access to them by fishermen.

13) Shut-off seines would continue to be utilized, subject to normal DFO regulations, within the national marine park except at designated sites required for park purposes identified by Parks Canada and DFO, in consultation with the local fishermen.

14) Fishermen who wish to relocate their weirs within a national marine park would continue to be able to do so, subject to the regulations of DFO and DOT, with the exception of sites required by Parks Canada for park purposes. Such sites would be identified by Parks Canada and DFO, in consultation with local fishermen.

15) A management strategy for seals would be prepared by DFO and Parks Canada, in consultation with local fishermen, which would establish measures to be used to minimize losses to weir fishermen or aquaculturalists caused by seals. Until a seal management plan is completed, individual fishermen would be permitted to continue to shoot seals that are in the act of causing damage or loss.

16) All park facilities in the vicinity of weirs, would be sited in consultation with the local fishermen owning and/or operating those weirs. Care would be taken to ensure park activities (i.e. boat tours) respect the weir fishing activity. Distance of a particular facility from a weir will depend on the nature of the facility and site characteristics.

17) Small scale staging areas which support weir fishing activities would continue where they currently exist as long as they do not disturb ecologically sensitive sites.

18) Due to the existing and significant interest shown by current tourists in the operation of weirs, Parks Canada would encourage the development of demonstration weirs for public access. This would satisfy public interest, have high interpretive and educational value and deter visitor curiosity from other weirs in the area. The demonstration weirs could be operated on a concession basis by local fishermen and weir owners. The many details of how such a facility might be operated would have to be discussed with the interested parties.

The Herring Fishery - Mobile Gear

19) No resource management guidelines are anticipated.

The Groundfish Fishery

20) The groundfish fishery would continue in a national marine park subject to the applicable DFO regulations.

21) Where adverse effects of groundfish dragging on the seabed or of groundfish gillnetting on seabirds and marine mammals are suspected, monitoring studies would be initiated to assess the extent of the problem. If significant effects are identified, Parks Canada would work closely with DFO, CWS and the fishing industry to develop management solutions which are mutually

acceptable. Such solutions would be added to the negotiated fisheries management plan for the park.

The Scallop Fishery

22) Scallop dragging would continue in a national marine park subject to the applicable DFO regulations.

23) Parks Canada would work cooperatively with DFO and the fishing industry to minimize indiscriminate methods of fishing and the use of gear which is destructive to the seabed. Where adverse effects on marine habitats and ecosystems due to scallop dragging are suspected, monitoring studies would be initiated to assess the extent of the problem. If significant effects are identified, Parks Canada would work closely with DFO and the fishing industry to develop management solutions which are mutually acceptable. Such solutions would be added to the negotiated fisheries management plan for the park.

The Lobster Fishery

24) The lobster fishery would continue in a national marine park subject to the applicable DFO regulations.

The Clam Fishery

25) Commercial and domestic fisheries for clams would continue in a national marine park under the appropriate DFO regulations.

Aquaculture

26) The cultivation of salmonid and other species of fish would continue in a national marine park, at sites approved by Parks Canada, DFO and DOT, provided all normal regulatory requirements are satisfied.

27) Parks Canada and DFO would survey all potential aquaculture sites within the park area. Each site would be assessed for its rearing potential and subjected to an environmental assessment. A plan for managing cage-rearing aquaculture projects would then be developed. In general, cage-rearing of salmonids should not be hindered by a marine park.

28) Parks Canada, DFO and DOT, in consultation with the fishing industry, would jointly develop and enforce regulations regarding the conduct of fish culture operations in regard to the location and areal extent of cages, the type and arrangements of moorings, the disposal of refuse and offal, the cleanliness and sightliness of facilities, the control of seals and other predators, the removal of redundant aquaculture equipment, etc. This would encourage the orderly development of the industry and ensure its compatability with Parks Canada's objectives for a national marine park.

29) Further study of the environmental consequences of cage-rearing salmonids is recommended.

Management of Water Quality

30) Parks Canada, as a member of the Regional Environmental Emergency Team, would work closely with other team members to ensure that responding agencies adequately consider park management requirements in their response to environmental emergencies, such as spills of oil or other chemicals. A co-ordinated emergency plan would be developed to determine response capability and procedures.

31) Parks Canada would co-operate with other federal and provincial agencies to monitor and mitigate external threats to the quality of marine park waters.

32) Parks Canada shore based facilities should be equipped with high quality sewage treatment capability.

33) Major wharfs run by Parks Canada should be equipped with toilets and pump out facilities for visiting boats with holding tanks for sewage.

34) Boats with toilet facilities owned by Parks Canada and those used for tour boats within the proposed national marine park should be equipped with sewage holding tanks.

35) Parks Canada wardens would assist EPS to enforce the Ocean Dumping Control Act and DFO regarding the water quality provisions of the Fisheries Act and Fisheries Inspection Act within the boundaries of the proposed national marine park.

Effects of Increased Visitation on Non-Park Areas

36) Parks Canada staff would work closely with DFO Fisheries Officers to be aware of any effects on local fisheries outside of park boundaries that may be caused by park visitors or park operations. Certainly, the park's interpretive program should make visitors aware of the necessity not to disrupt the fishing in, or adjacent to, the park.

Management of Potential New Fisheries

37) New fisheries may be approved in a national marine park subject to Parks Canada's objectives for the park, and the appropriate DFO regulations, in consultation with the local fishing industry. Stock assessments and environment impact studies would have to be completed prior to approval.

Local Non-Commercial Resource Harvesting

38) Local residents could continue to harvest renewable resources on a non-commercial basis subject to DFO regulations.

Commercial Shipping

39) No additional regulations regarding commercial shipping are considered necessary at present.

40) Park wardens and all vessels with VHF in marine park waters should monitor commercial vessel traffic by monitoring VHF14 "Fundy Traffic".

Management of Park Visitors

Recreational Boating

41) Any commonly used anchorage in the proposed national marine park would have fixed moorings placed and maintained by Parks Canada. These moorings should accommodate vessels up to 20 tons gross weight. Recreational boats would be encouraged to use the moorings provided and to anchor within the marine park only in designated areas or in an emergency. The numbers of moorings in a particular location would be decided on a site by site basis and in compliance with the Private Buoy Regulations under the Canada Shipping Act, or with the Navigable Waters Protection Act where interference with navigation may be possible. All dive locations, primitive campsites, and picnic sites should be equipped with permanent moorings.

42) Consultations would be held with local fishermen to identify the need for specific regulations to avoid conflicts between visitors and fishing operations. For example, regulations could be established to control recreational boating in close proximity to weirs.

43) Pamphlets would be made available to recreational boaters visiting the proposed marine park indicating boating regulations and mooring sites and stressing the need to respect fishing boats and gear.

44) Any direct inteference with fishing gear by recreational boats would be dealt with by utilizing and enforcing existing regulations under the Fisheries Act or new regulations, if found necessary, under the National Parks Act.

45) Information would be provided to recreational boaters on the presence of designated areas for sport diving within the proposed marine park. This information could be given out at park entrances, marinas, visitor centres, and other points of contact with the public. In addition, the Hydrographic Service of DFO would be requested to place designated sport diving areas on its hydrographic charts.

46) Tour boat operators would be advised to avoid interfering with commercial fishing operations. Tour boat routes would avoid areas of potential conflict with fishing operations. The rules of right of way would conform with the provisions of the Collision Regulations under the Canada Shipping Act.

Sport Diving

47) Recreational divers visiting the proposed national marine park would be required to register prior to diving.

48) Recreational divers visiting the park would be encouraged to dive in the company of a registered dive guide.

49) Divers would be required to fly a recognized divers flag to warn surface boaters of their presence.

50) Harvesting of marine organisms, dead or alive, would not be permitted by divers in a national marine park. This includes shell and scallop collecting, spearfishing and similar activities.

51) Interference with lobster traps and other fishing gear by sport divers would be dealt with through enforcement of existing regulations.

52) When registering, divers would be advised of all relevant regulations and potential hazards, such as the strong tidal currents.

53) Parks Canada would promote diving safety, and would encourage certification for all divers within the park.

54) Designated dive sites would be established by Parks Canada in consultation with the local fishing industry. It is recognized that some dive sites may only be available for specific periods to avoid conflict with the fishery.

55) Local fishermen, tour operators and other park visitors would be given information on the location of dive sites and safety precautions to take around divers.

Placement of Facilities

56) All Parks Canada development within the proposed national marine park would have to be subjected to the Environmental Assessment and Review Process (E.A.R.P.). It is important that environmental assessments be done early in the planning stage on a conceptual level and again later on a site specific level.

57) No developments would occur around major seabird colonies, as identified in Section 3.1 of this report.

58) No development or activity should unduly disturb the seabird or marine mammal concentration areas. These areas include Letete Passage and Head Harbour Passage north of Popes Island out to White Horse Island and west of the Spectacle Islands.

59) Any facility development undertaken by Parks Canada would be located and operated so as to minimize any potential negative impact on the commercial fishery. The location and operating procedures of such facilities would be decided in consultation with the national marine park Public Advisory Committee.

Recreational Fishing

60) Permits would not be required for recreational fishing.

61) Recreational fishing would be permitted for all species of fish, with the exception of scallops.

Marine Mammal Observation

62) Tour boats, including those involved in watching cetaceans, in park waters would be required to have a tour boat license, in which regulations governing the activity would be stipulated.

63) Whale watching activities conducted in a national marine park would be in accordance with whale watching guidelines and/or regulations established by DFO and/or Parks Canada.

64) Whale researchers using the proposed national marine park would be required to submit a research proposal and have it approved by both Parks Canada and DFO. This would follow the format now in use in terrestrial National Parks.

Sport Hunting

65) Sport hunting would not be permitted within the proposed national marine park.

3.0 RESOURCE MANAGEMENT CONCERNS

The Recommended Resource Management Guidelines have been prepared in response to a number of resource concerns identified by Parks Canada, Tourism New Brunswick, the Department of Fisheries and Oceans, and the public of the West Isles. This section of the report describes these concerns and outlines the rationale used to formulate the guidelines. The discussion of each concern is followed by the Recommended Resource Management Guidelines specific to that concern. Collectively, they are the same as those listed in summary form in the preceding section.

The analysis of these concerns has been as comprehensive as possible within the bounds of this feasibility study. In several cases, the need for additional research has been identified. Consequently, some guidelines must be considered as interim until the results of this research are known.

Should a national marine park be established in the West Isles, these guidelines would provide a formal, yet flexible approach to the management of the parks natural resources until such time as a more detailed resource management plan and a fisheries management plan have been prepared.

LIST OF RESOURCE MANAGEMENT CONCERNS - PROPOSED WEST ISLES NATIONAL MARINE PARK

3.1 **Protection of Ecologically Sensitive Areas.**

(1) Marine Areas of High Diversity

(2) Important Feeding Areas for Marine Mammals and Birds

(3) Islands

3.2 **Management of Present Commercial Resource Harvesting.**

(1) General Principles

(2) The Herring Fishery

(3) The Herring Fishery - Mobile Gear

(4) The Groundfish Fishery

(5) The Scallop Fishery

(6) The Lobster Fishery

(7) The Clam Fishery

(8) Aquaculture

3.3 **Management of Water Quality.**

(1) Sewage and Garbage Disposal

(2) Shoreline Developments

3.4 **Management of Potential New Fisheries.**

3.5 **Local Non-Commercial Resource Harvesting.**

3.6 **Management of Commercial Shipping.**

3.7 Management of Park Visitors.

(1) Recreational Boating

(2) Recreational SCUBA Diving

(3) Placement of Facilities

(4) Recreational Fishing

(5) Marine Mammal Observation

3.8 Sport Hunting.

3.1 PROTECTION OF ECOLOGICALLY SENSITIVE AREAS

Within the area of the proposed national marine park, there are several areas, in particular, that are recognized for their resource significance. They are mentioned here to identify those specific resources which are desireable or essential for inclusion within the proposed marine park, and therefore to assist in the definition of proposed optional park boundaries, and secondly, to highlight resource management guidelines that could apply, as best as can be determined within the bounds of this study.

The management guidelines identified for marine areas of high diversity and for important feeding areas for marine mammals and birds are currently limited to recommending their inclusion in the proposed park. There is no implication that commercial fishing activity would be restricted in these areas. As recommended in the resource management guidelines for commercial resource harvesting (Section 3.2), commercial fishing would continue in national marine parks, and Parks Canada and DFO would monitor those fishing activities that may have adverse effects on marine habitats and ecosystems, specifically scallop dragging, groundfish dragging and gill netting. If, as a result of these monitoring studies, significant effects are identified, Parks Canada would work closely with DFO and the local fishing industry to develop management solutions which are mutually acceptable.

Those management solutions could include provisions for the protection of the marine areas identified. Protection, however, does not necessarily imply a cessation of fishing. In most cases, protection can be achieved in conjunction with commercial fishing activity in the West Isles. With regards to the three methods of fishing mentioned above, the areas where these methods are utilized do not coincide to any great extent with those areas where protection is desireable.

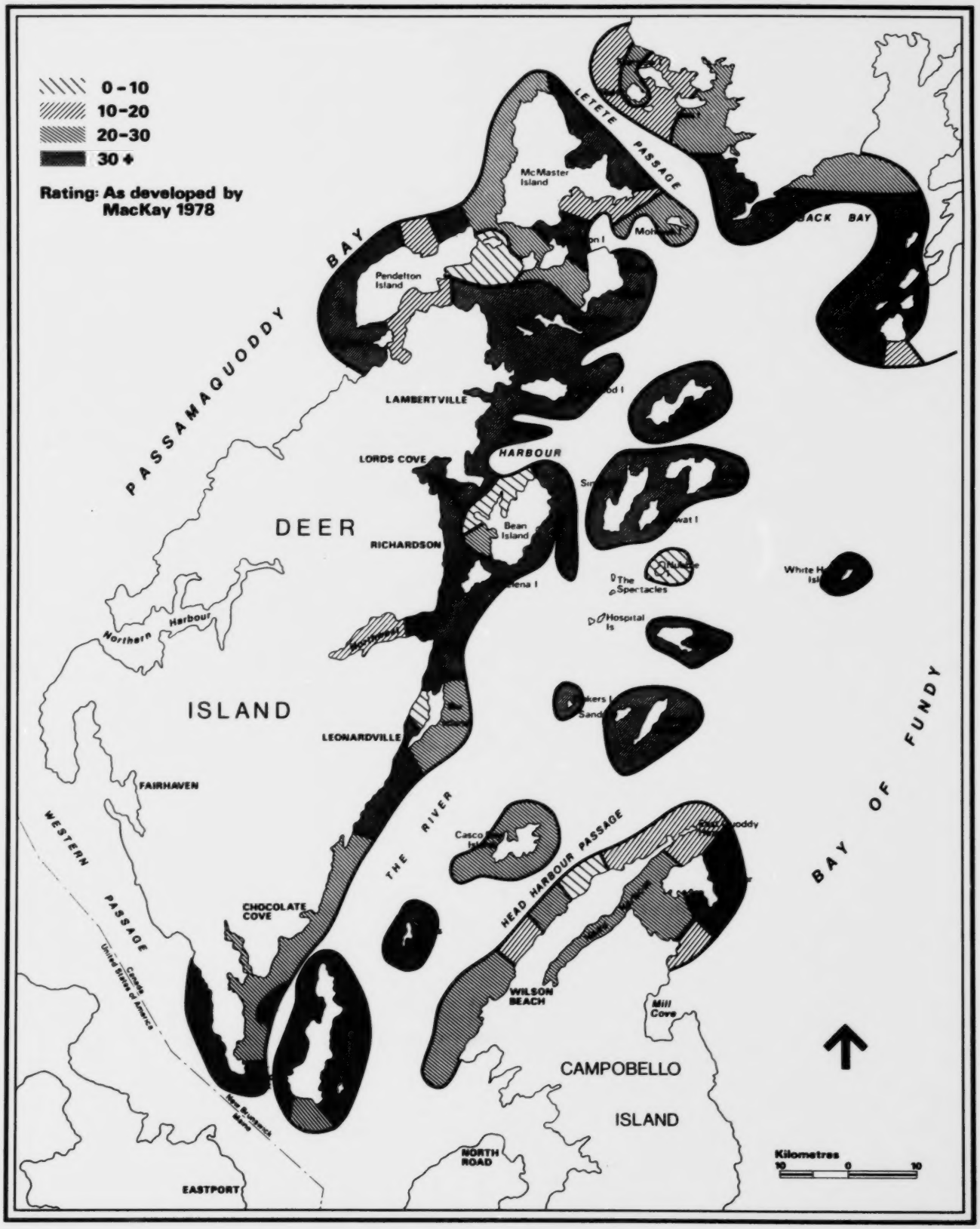
These details would be finalized in the process of completing the fisheries management plan for the marine park, to be conducted jointly by DFO and Parks Canada in consultation with the local fishing industry.

Those areas within the West Isles recognized for their resource significance are listed below.

(1) <u>Marine Areas of High Diversity</u> - MacKay et al (1978) rated intertidal and subtidal marine communities based on their abundance and diversity (Figure 3). The areas in the West Isles area that scored highest are listed below:

- the area surrounding White Horse Island
- the area surrounding Sandy and Spruce Islands
- the area surrounding Adam, Simpson, Barnes and Mowatt Islands

Figure 3 DIVERSITY AND ABUNDANCE OF INTERTIDAL AND SUBTIDAL MARINE COMMUNITIES



- the area surrounding Indian Island
- the shallows north of Hardwood Island to Parker Ledge, Mohawk Island and bounded by Macs, Pendleton and Deer Islands
- the shoal area around Deer Island Point and up the west side of the point
- the shoal area on the northeast side of Macs Island
- the shoal area on the west side of Green Point

Resource Management Guideline - These areas of high diversity should be considered for inclusion in the proposed national marine park.

(2) Important feeding areas for marine mammals and birds - MacKay et al (1978) listed critical feeding areas for marine mammals and birds in the West Isles area (Figures 4 and 5). The core of the areas for harbour porpoise, fin whales and most concentrations of marine birds are given below:

- Letete Passage
- Head Harbour Passage north of Popes Island out around White Horse Island, west to Spectacle Island, Sandy Island and then east to Head Harbour Passage.

Resource Management Guideline - This area should be included in the proposed national marine park.

Figure 4 MARINE MAMMALS – DISTRIBUTIONS, OCCURRENCES AND CRITICAL AREAS

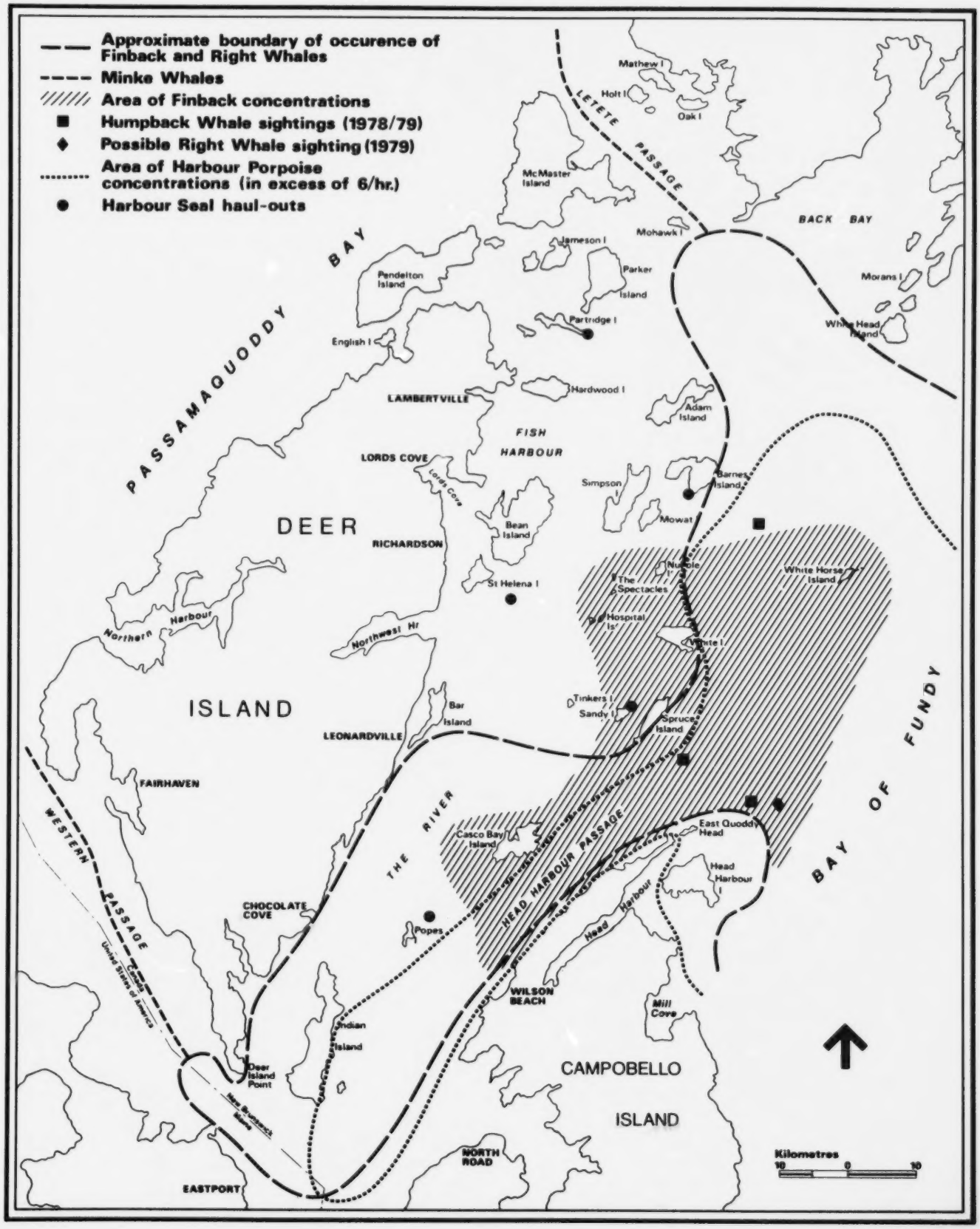
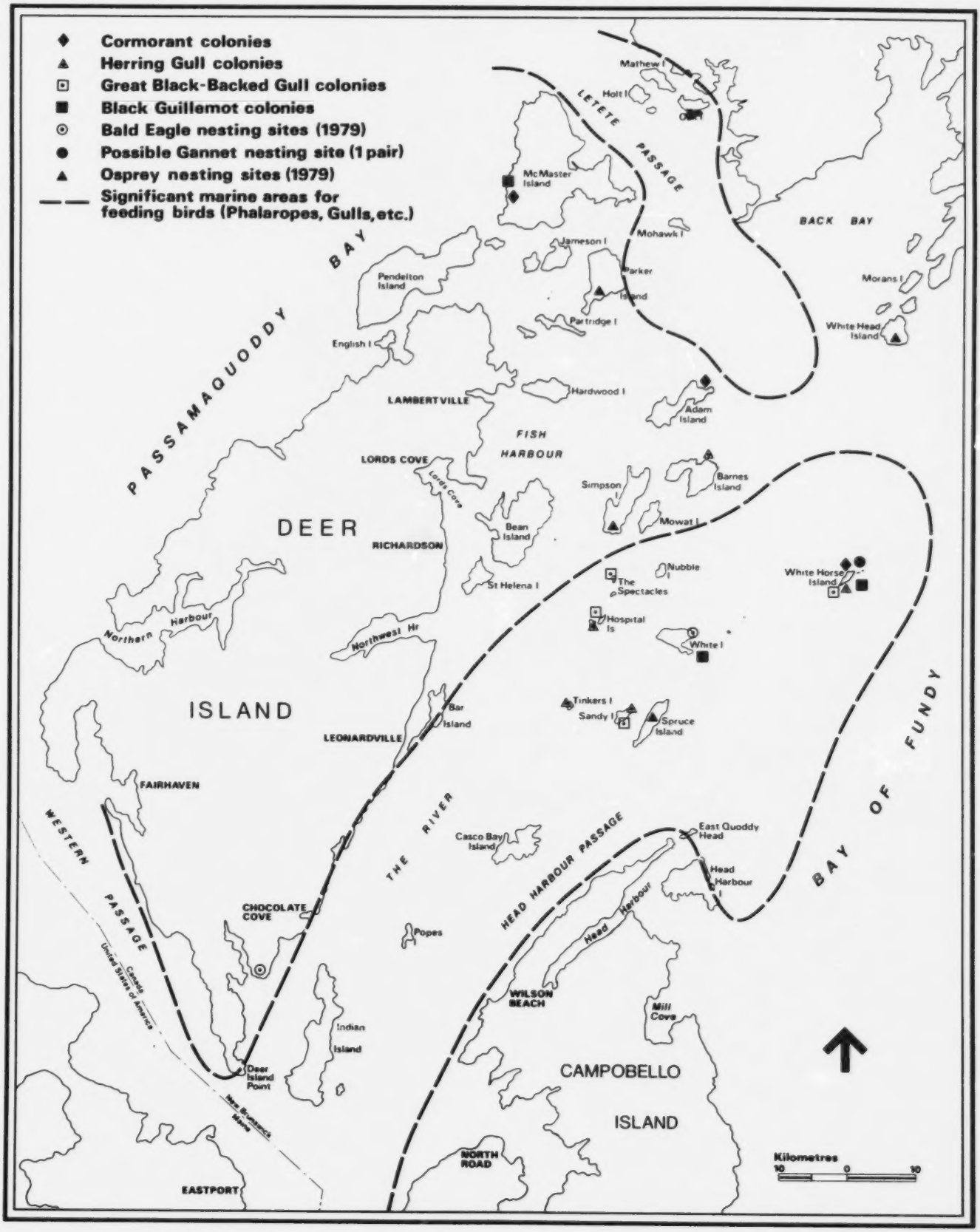


Figure 5 MARINE AND SHOREBIRD NESTING AND FEEDING AREAS



(3) Islands

White Horse Island - Important nesting island for marine birds such as gulls, guillemots and cormorants. There is also a possibility the island may have small numbers of nesting gannets and puffins.

Resource Management Guideline - This area should be included in the marine park. No landing should be permitted on the island by the public until a resource management plan can be prepared.

Adams, White, Simpson, Mowat and Barnes Islands - These islands represent a relatively untouched example of the region's small islands, are scenically attractive and the shoals and reefs surrounding them offer a diversity of underwater habitats. There are eagle nests on White Island, cormorant colonies on Adams Island, a herring gull colony on Barnes Island and an osprey nest on Simpson Island. The island group is also used as a haul out area for harbour seals.

Resource Management Guideline - This island group should be included within the proposed national marine park. Any development should be small scale and consider the sensitivity of the bird nesting and seal haul out areas.

Sandy Island - This is an important island because of its herring and great black-back

gull nesting colonies and the presence of a small sandy beach on the south end. The Island is surrounded by marine areas of high ecological diversity and has potential for small scale recreational opportunities such as dive tours, primitive camping, picnicking, and boat moorage sites. Care should be taken that facility siting would not disrupt the nearby seal haul out area.

Resource Management Guideline - The island should be included in the proposed national marine park. Only small scale recreational opportunities should be considered.

Resource Management Guideline - Egging would not be permitted on islands owned by Parks Canada.

3.2 COMMERCIAL RESOURCE HARVESTING

The area of the proposed national marine park in the West Isles supports a valuable commercial fishery based mainly on herring, lobster and groundfish. There is also smaller scale resource utilization such as scallop fishing, dulse collecting, clam digging and salmonoid aquaculture. MacKay (1976) noted "there is a sound ecological relationship between the fishermen of the area and the environment". It is stated in the draft National Marine Park Policy that "Fisheries will continue in marine parks, subject to protecting the ecosystem, to maintaining viable fish stocks and to attaining the purpose and objectives of the park". (Section 2.3.1) It is Parks Canada's position that marine parks and commercial fisheries are quite compatible and indeed share a common concern for the long-term conservation of marine resources.

Based on the above, the general principles immediately following below would apply to the management of commercial fishing within a national marine park. Each of the commercial fisheries are then discussed with recommended resource management guidelines for a national marine park. It should be noted that this section does not cover non-commercial resource harvesting or potential new commercial fisheries, both of which are covered in other sections.

3.2.1 General Principles

1) Commercial fishing would continue in a national marine park.

2) Commercial fishing in a national marine park would continue to be managed by DFO and regulated under the provisions of the Fisheries Act, and only DFO regulations would be utilized to regulate the fishery.

3) Commercial fishing in a national marine park would be managed in accordance with the regional fisheries management plans prepared by DFO. Parks Canada would not be responsible for the formulation of species quotas, seasons, or other regulatory mechanisms related to the management of fish stocks.

4) A fisheries management plan for the national marine park would be jointly prepared and approved by DFO and Parks Canada, in consultation with the local fishing industry, with specific management guidelines related to park management matters and the interaction between the management and operation of a national marine park and the commercial fishery. This management plan would be prepared prior to, and would become a condition of park establishment.

5) A national marine park Public Consultation Committee, to include representation from the commercial fishing industry, would be established to advise Parks Canada and DFO on any matter relating to park planning, management and operation. Such consultation would not replace or supercede the consultation held by DFO with the fishing industry in the preparation of the regional fisheries management plans.

3.2.2 The Herring Fishery

There are about 90 active fixed herring weirs in the West Isles study area, and these account for approximately 50% of the herring catches in District 51. It is a limited entry fishery, which means participation is allowed only with the purchase of one of the existing licenses, the total number of which is fixed. The location of a weir may be moved at the discretion of the owner, as long as it is 1000 ft. from any existing weir, as required by DFO regulations.

The main weir fishing season occurs from June to October, although in exceptionally good years, weir fishing will continue into the winter months.

The West Isles weir fishery is one of the last remaining major weir fisheries in the

world and has its own cultural significance. Approximately 2000 - 2500 people are employed in the regional herring industry, of which weirs are the mainstay. The herring catch represents 92% of the total volume of all fish landed in District 51. The value of herring landed in District 51, including the West Isles Study Area, was approximately $2,400,000 in 1982 (N.B. Dept. of Fisheries, 1983). Although the herring catch increased steadily up to 1982, the volume for 1983 and 1984 has declined drastically.

The herring are attracted to the West Isles to feed in the nutrient rich waters. As a pelagic, migratory species, the herring caught in the weirs are subject to a regional management strategy prepared by the Department of Fisheries and Oceans and there is little a marine park could do to manage or protect herring stocks. The weir fishery is somewhat self-regulating, with weirs catching only a percentage of the available stock. As such, it is model of fish management.

Some areas of conflict could exist between a park and the weir fishery. Whales and seals are often trapped in weirs causing damage to both the animals and the weirs. Seals (Harbour seals primarily) are periodically shot by local fishermen and

aquaculturalists when seals are damaging gear or preying on captured fish. A bounty currently exists on grey seals in the Bay of Fundy. Ideally, the shooting of seals by fishermen would not be a desirable way to manage seal populations in national marine parks. However, the seal population has risen dramatically in recent years and a problem does exist for weir fishermen.

Concern has been raised by the Bay of Fundy Weir Fishermen's Association that park activities, recreational boating in particular, could disrupt herring movements into the weirs.

Resource Management Guidelines:

1) The commercial fishery for herring using traditional weirs, seines, and gill nets would continue within a national marine park, subject to the applicable regulations of DFO. There would be no limits imposed by Parks Canada on access to them by fishermen.

2) Shut-off seines would continue to be utilized, subject to normal DFO regulations, within the national marine park except at designated sites required for park purposes identified by Parks Canada and DFO, in consultation with the local fishermen.

3) Fishermen who wish to relocate their weirs within a national marine park would continue to be able to do so, subject to the regulations of DFO and DOT, with the exception of sites required by Parks Canada for park purposes. Such sites would be identified by Parks Canada and DFO, in consultation with local fishermen.

4) A management strategy for seals would be prepared by DFO and Parks Canada in consultation with local fishermen, which would establish measures to be used to minimize losses to weir fishermen or aquaculturalists caused by seals. Until a seal management plan is completed, individual fishermen would be permitted to continue to shoot seals that are in the act of causing damage or loss.

5) All park facilities in the vicinity of weirs, would be sited in consultation with the local fishermen owning and/or operating those weirs. Care would be taken to ensure park activities (i.e. boat tours) respect the weir fishing activity. Distance of a particular facility from a weir will depend on the nature of the facility and site characteristics.

6) Small scale staging areas which support weir fishing activities would continue where they currently exist as long as they would not disturb ecologically sensitive sites.

7) Due to the existing and significant interest shown by current tourists in the operation of weirs, Parks Canada would encourage the development of demonstration weirs for public access. This would satisfy public interest, have high interpretive and educational value and deter visitor curiosity from other weirs in the area. The demonstration weirs could be operated on a concession basis by local fishermen and weir owners. The many details of how such a facility might be operated would have to be discussed with the interested parties.

3.2.3 The Herring Fishery - Mobile Gear

In addition to using weirs, herring are also fished in the study area using seines and gill nets.

Gill nets are generally used by small boats and are either fixed or drift with the tide. They catch comparatively few herring. No resource concerns have been identified for these surface gill nets except for a possible by-catch of salmon.

A seine is a long, deep net that is used to encircle a school of herring. Seiners tend to be larger boats. The proposed national marine park area is used only infrequently by seiners. No resource concerns have been identified for seining. They are quite selective in the fish they catch and do not contact the bottom.

Resource Management Guideline:

1) No resource management guidelines are anticipated.

3.2.4 The Groundfish Fishery

The term "groundfish fishery" refers to fishing for a number of species by a number of different methods. In the West Isles area, the principle species caught are cod, haddock, winter flounder and pollock. In 1982, these species supported a catch of 1,005 metric tons for a value of $599,000 (N.B. Dept. of Fisheries, 1983).

Methods of catching groundfish are diverse. They include hand-lining, long-lining, dragging, seining and gill netting. A large area of the West Isles is currently closed to groundfish gill netting because of a conflict with hand-lining and long-lining gear.

The groundfish fishery fluctuates from one location to another from year to year

depending on the distribution of the different fish species. According to the fisheries maps of the Passamaquoddy Marine Resource Pilot Study (1982), most groundfishing activity takes place outside the core of the study area, being located eastward and seaward of Barnes, White and Spruce Islands.

Potential resource concerns regarding the groundfish fishery have been outlined by Brown (1982). The majority of the concerns center on dragging and gill netting.

Dragging for groundfish involves the use of various types of trawls and bottom seines all designed to catch fish living on or near the bottom. Two major types of problems exist. First, the gear often comes in contact with the bottom, digging tracks and skimming off muddy sediments. Disruption is very much dependent on sediment type. Secondly, dragging gear often results in a by-catch of other species including juvenile cod and haddock.

Groundfish gill-netting concerns include entanglement of marine mammals and other by-catch. These are outlined below as presented by Brown (1982).

"Set or sunken gillnets are notorious for other by-catch as well, including whales, sharks, seals and porpoises. These animals are not only destructive of the nets, but also are seldom released alive, either drowning in the nets or being killed by the fishermen.

The former are occasional by-catches, whereas sculpins, eelpouts, starfish and crabs are chronic by-catches in all sunken gillnets. Some are probably returned alive to the sea, but most are probably not, as taking a crab from a gillnet is probably time-consuming and frustrating, resulting in lethal damage to the crab."

The extent to which these problems occur in the West Isles is not clear. Further research would be required to monitor the impact of groundfish dragging and of groundfish gillnetting.

Seabird Mortality

In Newfoundland, gillnetting of murres and puffins is a local problem in the vicinity of seabird colonies. The birds affected appear to be mostly non-adults. The

control of this mortality is difficult, as the use of gillnets would have to be restricted within 30 miles of major colonies. This is also where the greatest fish landings occur in the inshore fisheries. Diving seabirds of all kinds, including loons, grebes, and guillemots are drowned in gillnets all along the Newfoundland coast. The significance of the number of kills is not known but in the case of loons, could be critical (J. Piatt, pers. comm.).

In the West Isles, the breeding birds that would be most susceptable are common eiders, guillemots and cormorants. No studies have been undertaken in the West Isles to determine what seabird mortality occurs, however, CWS biologists indicate that losses are probably minimal (Dave Scarratt, DFO; Bruce Johnson, CWS, pers. comm.).

Resource Management Guidelines:

(1) The groundfish fishery would continue in a national marine park subject to the applicable DFO regulations.

(2) Where adverse effects of groundfish dragging on the seabed or of groundfish gillnetting on seabirds and marine mammals are suspected, monitoring studies would be initiated to assess the extent of the problem.

If significant effects are identified, Parks Canada would work closely with DFO, CWS and the fishing industry to develop management solutions which are mutually acceptable. Such solutions would be added to the negotiated fisheries management plan for the park.

3.2.5 The Scallop Fishery

The scallop fishery in the West Isles has been described by Hardie and Jennings (1981) as follows:

"Scallops are common in the study area but are not abundant enough to sustain a large fishery. Scallops are usually harvested in the winter to supplement local incomes. Most of the scallops are harvested by drags with some landings being attributed to scuba divers".

In 1982, the landed value of scallops in District 51 was $201,000. However, it is impossible to determine what portion of that value came from within the West Isles Study Area (NB Dept. of Fisheries, 1983). There were 72 scallop licenses issued in District #51 in 1982.

The impacts of dragging for scallops on the sea bed have been summarized by Brown (1982):

"1. Scallop dredges contribute to an appreciable roughening of the bottom, lifting large boulders from the sediment and overturning many of them, presumably leading to the destruction of the epifauna on the upper surfaces (Caddy, 1973).

2. Dredging results in sediments being suspended and the result is reduced underwater visibility from 4-8 m to less than 2 m within 20-30 m of the track.

3. Under conditions of strong tidal flow it is suspected that intensive dredging would lead to the erosion of sediments lifted into suspension, but to what extent is not known (Caddy, 1973).

4. Incidental mortality due to fishing is estimated at 15-20%. This is probably caused by the dredge passing over scallops that had either gone underneath the sweep chain or passed through the meshes in the dredge belly (Caddy, 1973).

5. Foraging fish tend to move into dredge tracks presumably to feed on scallops and other invertebrates crushed by the dredge (Caddy, 1973).

6. Small inshore dredges tend to be highly inefficient in that they tend to have a relatively small capacity, and when they are full, contact of the teeth with any fixed obstacle tips the dredge forward and dumps its contents onto the bottom. This presumably may occur when enough rocks have accumulated in front of the teeth to impede progress of the dredge (Caddy, 1973)."

The amount of damage to the sea bed depends upon the type of substrate and type of gear used. The substrate of the major scallop beds in the West Isles area may be a gravel that is resistant to disruption from scallop dragging (D. Scarratt, pers. comm., 1984). Further research would be required to confirm if this is the case.

Scallop dragging within the core area of the West Isles (Head Harbour Passage - Quoddy River - Fish Harbour) is very patchy and localized. Activity is limited to a small number of boats. Dragging is limited here by small scallop beds and rugged underwater topography. The Passamaquoddy Marine Resource Pilot Study (1982) showed no scallop harvesting within this area. However, the study may have overlooked some small scale use (D. Scarratt, pers. comm. 1982).

Scallop and groundfish dragging are now prohibited in much of the core area during the spring, summer and fall in accordance with Section 24 of the Atlantic Fisheries Regulations. Subsection 24(1) of this regulation reads:

> "Subject to subsections (2) and (3), the master of every fishing vessel with mobile gear shall at all times while the vessel is engaged in fishing ensure that there is maintained a distance of at least one-half nautical mile between his vessel, including any equipment and gear attached thereto, and any previously set fixed gear."

Mobile gear is defined to include scallop drags, otter trawls and purse seines. Fixed gear includes herring weirs and "previously set" refers to the seasonal use of this gear.

The actual impact of scallop dragging on the marine habitats of the West Isles is not known, and further research is required.

Resource Management Guidelines:

(1) Scallop dragging would continue in a national marine park subject to the applicable DFO regulations.

(2) Parks Canada would work cooperatively with the DFO and the fishing industry to minimize indiscriminate methods of fishing and the use of gear which is destructive to the sea bed. Where adverse effects on marine habitats and ecosystems are suspected, monitoring studies would be initiated to assess the extent of the problem. If significant effects are identified, Parks Canada would work closely with the DFO and the fishing industry in order to develop management solutions which are mutually acceptable. Such solutions would be added to the negotiated fisheries management plan for the park.

3.2.6 The Lobster Fishery

The lobster fishery in the West Isles area has been described by Hardie and Jennings (1981):

"The lobster fishery by far constitutes the most valuable invertebrate fishery in the study area ... This inshore fishery extends from low tide level to depths of 30 fathoms or more and occurs throughout the study area. Landings vary seasonally due to weather, water temperatures, and the lobster fishing season which is open from November 15 to June 24. There is no lobster fishing from June 25 to

November 14; 5% of the catch is landed from January 1 to April 30, 25% from May 1 to June 24, and 70% from November 15 to December 31.

Because of the oceanographic (high tide) conditions and proximity to U.S. markets, the West Isles area is one of Canada's major areas for the long term storage of live lobsters. Lobsters caught elsewhere in the Atlantic Provinces are held in large tidal pounds for marketing in summer and winter. Seven pounds located on Deer Island stock at any one time an averge of 1.6 to 2.5 million pounds of live lobster. Five of these pounds are located in the study area."

In 1982 there were 55 licensed vessels in the lobster fishery in District 51 that landed 61 tons for a value of $410,000. The value of the lobster catch increased by 65.5% between 1980 and 1982.

Resource Management Guidelines:

(1) The lobster fishery would continue in a national marine park subject to the applicable DFO regulations.

3.2.7 The Clam Fishery

The clam fishery in the West Isles study area has been described by Hardie and Jennings (1981):

"The soft-shelled clam is a traditional though somewhat sporadic fishery. Clams are harvested annually with a clam hoe on available "clam flats". There is no consistent seasonal pattern of this particular fishery. Some of the more important clam areas in the West Isles are Doyles Passage and the Mascarene penninsula. Although numerous areas on the mainland and Deer Island are closed from time to time due to paralytic shellfish poisoning, clamming is still pursued in the West Isles, when permitted.

The presence of paralytic shellfish poisoning (PSP) has been the main limiting factor to a clam fishery in the West Isles area. PSP is caused by a bloom of a species of plankton, that is fed on by the filter-feeding clams. The plankton is harmless to the clam but potentially fatal to humans when the toxin is concentrated. At present, the clam fishery is small scale, causing only minor disturbance to muddy intertidal areas. This fishery is not viewed as being overly disruptive to the marine community at its present scale."

Resource Management Guidelines:

(1) Commercial and domestic fisheries for clams would continue in a national marine park under the appropriate DFO regulations.

3.2.8 Aquaculture

Aquaculture in the West Isles presently pertains to the cage-rearing of salmonids. However there is a great potential for the cultivation of many other marine species, from fish (i.e. halibut) to shellfish (i.e. blue mussels) to algae (irish moss).

An aquaculture program commenced in the study area in June of 1978 with the construction of several fish pens in the Richardson area. Atlantic Salmon and rainbow trout are introduced as young, fed prepared foods and harvested for national and international markets.

It is generally recognized there is large growth potential for cage-rearing salmonids in the West Isles area. The area's high productivity and relatively warm winter temperatures make some areas within the proposed marine park some of the prime sites for aquaculture in Eastern Canada.

Facilities for this type of aquaculture include large floating cages with some shore based buildings. Sites are limited by shelter, water depth and rate of water exchange.

No major resource concerns have been identified for the cage-rearing of salmonids in the West Isles area. There

may possibly be a build-up of feces and food under the cage sites causing local anaerobic conditions. Environmental concerns must be examined on a site by site basis, taking into account the flushing rate, type of habitat, etc.

The main factor currently limiting cage-rearing of salmon is the lack of smolts. There is pressure to use other species such as rainbow trout and pink salmon. The introduction of exotic salmonoid species may have detrimental effects on the native Atlantic Salmon. This concern is not well defined but there is a potential for genetic mixing, and the establishment of competing spawning runs of exotic salmonids in Atlantic Salmon rivers.

Cage-rearing salmonids can take up a large surface area. This may be significant in critical areas, conflicting with such surface uses as seabird staging areas or park facilities.

Current licencing arrangements for aquaculture are well established. When placing anything permanent in navigable waters, the operator must have a permit under the Navigable Waters Protection Act (Transport Canada). When cage-rearing salmonids, an operator must have a permit

from DFO. Various other agencies, such as the federal Department of Environment may also become involved. With ownership of the seabed within a national marine park under federal jurisdiction, Parks Canada, DFO and DOT would jointly approve applications for aquaculture developments. The New Brunswick Department of Natural Resources would continue to issue the seabed leases subject to such approval.

Resource Management Guidelines:

(1) The cultivation of salmonid and other species of fish would continue in a national marine park, at sites approved by Parks Canada, DFO and DOT provided all normal regulatory requirements are satisfied.

(2) Parks Canada and DFO would survey all potential aquaculture sites within the park area. Each site would be assessed for its rearing potential and subjected to an environmental assessment. A plan for managing cage-rearing aquaculture projects would then be developed. In general, cage-rearing of salmonids would not be hindered by a national marine park.

(3) Parks Canada, DFO and DOT, in consultation with the fishing industry, would jointly develop and

enforce regulations regarding the conduct of fish culture operations in regard to the location and areal extent of cages, the type and arrangements of moorings, the disposal of refuse and offal, the cleanliness and sightliness of facilities, the control of seals and other predators, the removal of redundant aquaculture equipment, etc. This would encourage the orderly development of the industry and ensure its compatibility with Parks Canada's objectives for a national marine park.

(4) Further study of the environmental consequences of cage-rearing salmonids is recommended.

3.3 MANAGEMENT OF WATER QUALITY

The maintenance of water quality is essential to the maintenance of any marine community. Water quality is a term encompassing a wide subject area but can be defined as the physical and chemical properties of water that, in the case of a marine park, are within a range that allows the maintenance of a healthy marine ecosystem.

Potential threats to water quality in the proposed national marine park may come from two main sources. The most important would be external pollution sources from Saint John harbour, the Point Lepreau nuclear generating station, Letang Inlet, the St. Croix River, and local commercial shipping traffic. Secondly, local communities also generate sewage and fish processing waste.

At present, water quality in the West Isles area is good. The situation has been well described by Hardie and Jennings (1981).

"Coastal and marine developments need not be in conflict with the maintenance of environmental quality. Considerable effort and intergovernmental cooperation both at federal and provincial levels will be required to ensure that high water quality can be maintained throughout the study area. Similarly, the achievement of Parks Canada's goals related to species and habitat protection will depend on inter-agency co-operation and management

throughout the adjacent coastal zone and in the park itself. The study area does not suffer greatly from pollution and water quality is considered to be good (Baxter and Julien, 1977). However, the real threat to the area comes from external sources, particularly on the mainland. The two major sources of pollution adjacent to the study area are the St. Croix River and the Letang Estuary. At present, neither impacts the study area directly (MacKay, 1976). Pollution sources within the study area are small and localized being largely related to domestic sewage and fish processing plants."

3.3.1 Sewage and Garbage Disposal

The sewage disposal system of the communities on Deer Island consists primarily of septic tank systems, of which a considerable number are directly connected to outfalls to the sea. Since the present volume of sewage effluent is very small, the damage from pollution has been limited to date. Areas already affected include the intertidal zone where sewage outfalls are concentrated, and the soft bottom habitat of Lord's Cove and embayments such as Leonardville Harbor where flushing rates are very low. Special concern must be given to the future treatment of sewage from these communities.

The provision of adequate sewage collection, treatment and disposal systems

for the communities are critical to a West Isles marine park concept. Parks Canada will have to rely on the cooperation of the Province and other federal government agencies for the strict enforcement of existing federal and provincial anti-pollution legislation.

At the present time there is minimum direct dumping of solid wastes into the waters of and adjacent to the proposed national marine park area. Notable exceptions are: the practice of dumping offal at wharf areas, particularly at Wilson's Beach, Fairhaven, and Eastport, Maine, and the dumping of rubbish into the waters near high activity areas such as the main fishing wharves and the terminals of the Letete Ferry. Such practices are likely to continue and perhaps accelerate in the communities unless a program of environmental education is undertaken. Since the areas where solid waste disposal is occurring are outside the study area at present, Parks Canada would have few means of directly controlling this form of pollution.

3.3.2 Shoreline Developments

Shoreline developments in the study area and along the mainland coast are related primarily to fishing activities. For the most part, they have a very limited and

localized impact on the marine environment. However, the dumping of fish offal does present a potential problem. Oil and gas spillage is particularly evident at the main wharves.

There are numerous regulations in place regarding the dumping of any substances into marine waters. The Ocean Dumping Control Act and the Fisheries Act both cover dumping of any deleterous substances into tidal waters. The Fisheries Inspection Act covers the dumping of residue from fish processing plants. These acts are comprehensive but the maintenance of water quality requires monitoring and enforcement.

One of the greatest potential threats to water pollution in the West Isles area comes from the possibility of an oil spill. There is an important tanker route into Saint John and prevailing currents may take a Saint John oil spill directly to the West Isles. More minor, but closer, sources of petroleum come from Eastport, Maine, and the St. Croix River region.

Some concern has been expressed about some local commercial activities threatening water quality. A pulp mill near the Letang Estuary has caused localized water quality problems from the deposition of excessive organic matter in the estuary. However, at

present, there is no evidence to suggest that it is affecting water quality in the study area.

Presently, the Canadian Coast Guard has manpower and equipment to respond to marine environmental emergencies, especially oil spills. A marine emergency response centre has been established at the St. Andrews Biological Station to provide an initial response capability for local oil spills including those which occur in the West Isles area. Equipment is also located in Saint John under the direction of the Coast Guard. There is a multi-agency "Regional Environmental Emergency Team" which acts as an advisory and consultative body on water quality and response to marine environmental emergencies. This team has representatives from Department of Fisheries and Oceans, Environment Canada, Transport Canada as well as the province of New Brunswick. It is chaired by the representative from the Environmental Protection Service.

The high degree of mixing in the West Isles area should easily handle the additional nutrients and energy provided by domestic sewage in general. There may be pollution problems of eutrophication in localized bays and harbours where the flushing rate is low. Of more concern is the problem of

disease spread by untreated sewage. This is currently not a problem in the West Isles area but might be if additional sewage is dumped into sheltered areas.

Parks Canada has a mandate to protect Canada's marine heritage in the draft National Marine Parks Policy. As such it should set a guiding example in the maintenance of water quality.

Resource Management Guidelines:

(1) Parks Canada, as a member of the Regional Environmental Emergency team, would work closely with other team members to ensure that responding agencies adequately consider park management requirements in their response to environmental emergencies, such as spills of oil or other chemicals. A co-ordinated emergency plan would be developed to determine response capability and procedures.

(2) Parks Canada would co-operate with other federal and provincial agencies to monitor and mitigate external threats to the quality of marine park waters.

(3) Parks Canada shore based facilities should be equipped with high quality sewage treatment capability.

(4) Major wharfs run by Parks Canada should be equipped with toilets and pump out facilities for visiting boats with holding tanks for sewage.

(5) Boats with toilet facilities owned by Parks Canada and those used for tour boats within the proposed national marine park should be equipped with sewage holding tanks.

(6) Parks Canada wardens should assist EPS to enforce the Ocean Dumping Control Act and DFO regarding the water quality provisions of the Fisheries Act and Fisheries Inspection Act within the boundaries of the proposed national marine park.

3.4 MANAGEMENT OF POTENTIAL NEW FISHERIES

There is considerable potential for the development of new fisheries in the West Isles study area. These fisheries have been outlined by MacKay and Bosien (1979):

MOLLUSCA

1. Little littorea (Common periwinkle). This is a part-time fishery with sporadic landings. Periwinkles are common at a number of localities and occur throughout the study area. Harvesting is done by hand at low tide and some attempts have been made at trapping and dragging (Cook, 1976).

2. Buccinum undatum (Northern Whelk). This edible whelk has not been exploitated in the study area. It is common but would require further study to determine whether sustained yields would justify a fishery. Elsewhere, they are fished using strings of baited traps and are also caught in lobster traps.

3. Mytilus edulis (Blue mussel). The common edible blue mussel is readily available in the study area but like the soft shelled clam is subject to contamination by paralytic shellfish poison (PSP). Mussel harvesting is prohibited in the Bay of Fundy due to PSP. Some research is currently underway regarding detoxification of mussels.

4. Volsella (modiolus) modiolus (Horse mussel). The horse mussel has never been marketed in the Canadian Maritimes (Caddy et al, 1974), although abundant in the study area. They can be harvested by hand on low spring tides, dragged subtidally or harvested by scuba divers. The horse mussel is also subject to PSP and harvesting is prohibited.

5. Mya arenaria (Soft-shelled clam). The clam fishery is a traditional, though sporadic, fishery. The amount of effort put into this fishery is determined to a large degree by the availability of other species and by the seasonal nature of closures. Clams are harvested manually with a clam hoe but hydraulic harvesters do exist.

6. Ilex illecebrosus (Squid). Squid were not recorded during the field survey, but are occasionally abundant in the study area. There have been landings of squid from the study area but no steady market has developed since supply cannot be guaranteed.

ANNELIDA

1. Glycera sp. (Bloodworm). There is an established market for bloodworms. However, their abundance is too limited to produce a viable fishery. Bloodworms are usually harvested by hand digging.

2. Nereis virens (Sandworms). This species is common in the study area at a limited number of sites. The flats at these sites, however, are not extensive enough to support any large scale commercial operation.

3. Myxicola infundibulum (Feathered fan worm). This species has been harvested for use in research and information on harvesting and marketing can be found in MacKay (1976).

ARTHROPODA

1. Meganyctiphanes norvegica (Krill, Euphausiid shrimp). This species is abundant on a seasonal basis in the study area and is commercially utilized by other countries. Due to its importance in local food chains it is unlikely a krill fishery would be established in the West Isles area.

2. Pandalus borealis and P. montagui (Commercial shrimp). Both species of shrimp are present but no fishing takes place in the study area due to bathymetric and regulatory restrictions. Caddy and Chandler (1974) record landings for District 51 of 807,095 lbs. in 1968; 31,000 lbs. in 1970; 33,617 lbs. in 1971; 653 lbs. in 1972; and 39,230 lbs. in 1973. Shrimp are usually caught in a specially constructed trawl but some attempts have been made to capture them in rectangular netted traps.

3. Cancer borealis (Rock crab). Rock crabs are a common catch in lobster traps in the study area. However, due to lack of market this species is usually discarded. There are no official landings recorded for District 51 but small quantities are taken for domestic use on occasion. Lack of market demand and low landed prices prevent utilization at the present time. Because they are caught along with lobster in the same traps and are handled in any event, a market would produce immediate landings and this potential fishery is worthy of further investigation.

ECHINODERMATA

1. Strongylocentrotus droebachiensis (Sea urchin).
   As indicated in a survey of the sea urchin roe industry (Mackay, 1976) a good market for sea urchin roe exists. Urchins are abundant in the study area and are harvested using scallop drags, divers, traps, tassel drags, manual shore collection and surface rakes.

2. Holothuria sp. (Sea cucumber).
   Potential exists for exploiting sea cucumbers which are common in the study area. No information exists on size of resource or harvesting methods (Scarratt, pers. comm. Oct. 1984).

CHORDATA

1. Squalus acanthus (Dogfish).
   Dogfish are a common species in the study area on a seasonal basis when they become a undesirable part of fish draggers and weir fishermen's catches. Although used in other countries as a food fish, no markets have been established at present.

2. Raja sp. (Skate). Skate are commonly caught by fish draggers in the study area but no market currently exists.

ALGAE

1. Chondrus crispus (Irish moss). Irish moss is common in the study area but has never been commercially harvested. According to Neish (1976) "Irish moss was found in quantities far too small to permit commercial exploitation in Charlotte County".

2. Rhodymenia palmata (Dulse). Dulse is common in the study area, but no harvesting takes place. Neish (1976) considers several sites within the study area to be suitable for dulsing operations.

3. Porphyra sp. Porphyra is present in the study area and because of its high market values (in 1973, $32.00 per dry pound, Neish, 1976) is worthy of examination for a fishery or culturing purposes.

4. Laminaria sp. (Devils apron). Laminarians are present to common in the study area but do not appear abundant enough to justify a fishery. As well, Neish (1976), in his survey of the distribution of commercially useful algae, does not consider the study area harvestable.

5. Ascophyllum nodosum (Rock weed). Ascophyllum is an abundant species in the study area but no harvesting takes place. The The development of a seaweed industry would create a fishery for this species which can be used as rockweed meal.

There is always the potential for any marine species to be of commercial interest. The above list only illustrates the numerous potential fisheries that are currently recognizable. Harvesting of scientific specimens is a fishery that is very difficult to predict. At present this fishery is limited but there is definite growth potential.

The draft National Marine Parks Policy makes the following statement with regard to new fisheries (Section 2.3.8):

> "The establishment of any fishery, including aquaculture, which is not incorporated within a current fisheries management plan will require joint approval by Parks Canada and the Department of Fisheries and Oceans, and will

be subject to prior completion of stock assessment and environmental impact studies".

It would not be the intention of a national marine park to stop the evolution of the commercial fishing industry or to have a detrimental effect on its continued viability.

Resource Management Guidelines:

(1) New fisheries may be approved in a national marine park subject to Parks Canada's objectives for the park, and the appropriate DFO regulations, in consultation with the local fishing industry. Stock assessments and environmental impact studies would have to be completed prior to approval.

3.5 LOCAL NON-COMMERCIAL RESOURCE HARVESTING

At present, local residents harvest various marine organisms for domestic consumption. These include clams, periwinkles, and various fishes. There is no real data on the amount or type of organisms taken. Local residents have expressed concern that they would not be permitted to continue this non-commercial harvesting if a national marine park was established.

Parks Canada's draft National Marine Parks Policy states (Section 2.2.9):

"Continued traditional/subsistent harvesting of certain renewable resources ... will be permitted if one or more of the following conditions are met:

(i) the activity is a traditional/subsistent resource use by local people;

(ii) the activity is of value in portraying to visitors traditional relationships between man and the marine environment;

(iii) the activity is a treaty right or is a right recognized in native claims settlements.

All such activities will be subject to the requirement to protect the ecosystem and maintain viable populations of wildlife in accordance with the Migratory Birds Convention Act and the

National Parks Act, and will be agreed to as a condition of marine park establishment".

It is virtually impossible to identify specific resource concerns associated with non-commercial resource harvesting because its nature and extent are not well defined. However, one thing is clear: Parks Canada would not permit the over-exploitation of a resource in a national marine park.

Resource Management Guidelines:

(1) Local residents could continue to harvest renewable resources on a non-commercial basis subject to DFO regulations.

3.6 COMMERCIAL SHIPPING

Presently, the West Isles area is used as a minor commercial shipping route. Ships headed for Eastport, Maine, St. Andrews, and Bayside (on the St. Croix River) all travel through Head Harbour Passage. For St. Andrews and Bayside, ships then use Western Passage before entering Passamaquoddy Bay.

There is no alternative to the above route. Letete Passage is too narrow and dangerous and the bridge is too low at Lubec, Maine to permit large ships a straight run through Western Passage. All marine shipping must notify "Fundy Traffic" in Saint John (Transport Canada) by radiotelephone upon entering the Bay of Fundy.

Cargos carried by commercial shipping vessels in the West Isles area are variable. The major items shipped into or out of Bayside include concentrated orange juice, potatoes, wood products and tuna. Currently, there are approximately 60 ships per year using the route and a marginal increase is predicted over the next decade. Improvements to the Bayside facilities are being considered.

The major resource concern associated with commercial shipping is the loss of cargo, particularly petroleum products. Head Harbour Passage is a difficult route for shipping because of the the extreme tidal currents, numerous shoals

and frequent presence of fog. A recent proposal for a supertanker port at Eastport was rejected because of these navigational difficulties and the ecological importance of the surrounding waters. The presence of a national marine park in the area would give additional strength to arguments against large shipments of oil through the area.

Transport Canada has promulgated regulations (SOR82-244) limiting oil cargoes transported through Head Harbour Passage to 5,000 cubic meters. If further regulations on commercial shipping were required due to park establishment, Transport Canada would be requested to take the necessary measures.

Resource Management Guidelines:

(1) No additional regulations regarding commercial shipping are considered necessary at present.

(2) Park wardens and all vessels with VHF in marine park waters, should monitor commercial vessel traffic by monitoring VHF14 "Fundy Traffic".

3.7 MANAGEMENT OF PARK VISITOR ACTIVITIES

Parks Canada has a dual mandate to meet in the management and operation of national parks and national marine parks: to protect and conserve the parks natural resources, and to encourage and provide for visitor understanding, appreciation, and enjoyment. These two broad objectives are not necessarily conflicting, but many situations arise where resource managers must manage the visitor in order to protect the resource. In a national marine park, a second type of conflict may arise, that of continuing commercial resource harvesting without interference from park visitors. Resource management guidelines for park visitors must therefore consider both protection of the fishermen from unnecessary disruption as well as natural resource protection.

There are several catagories of visitor activities, that are dealt with separately below:

3.7.1 Recreational Boating

If a national marine park were established in the West Isles, an increase in the number of recreational boaters, both in sailboats and motor vessels would undoubtedly occur. It should be kept in mind, however, that recreational boating already occurs in the study area. There are yacht clubs in St. Andrews and in the St. Croix estuary as well as visiting

American and Canadian yachtsmen. No data on the numbers and types of vessels are available but they are generally pleasure vessels of 20-45 feet with onboard sleeping, cooking and toilet facilities, and those under 20 feet that are used on day trips for divers and sightseers. A marine park would increase the numbers of vessels but not necessarily change the types of vessels used in recreational boating.

There are several resource and fisheries concerns associated with recreational boating. Firstly, boating can impair water quality through gas and oil spills and the flushing of sewage. A marine area can also be visually impaired by the dumping of garbage. Recreational boaters can also cause damage to benthic communities when anchoring. Such damage is usually minor but may become significant in high use areas or when anchors drag. Fixed moorings for boats would solve this problem.

From a fisheries standpoint, there is considerable concern that recreational boaters could cause damage to fishing gear, and disrupt fishing activity and the movement patterns of schooling fish, such as herring. Some fishermen are also concerned that recreational boaters would steal their catch, especially from lobster

traps, and that high speed recreational boats would cause a hazard in congested areas.

There is a general provision in the Fisheries Act that protects fishermen from recreational boaters: "... no boats or vessels shall destroy or wantonly injure any seines, nets or other fishing apparatus lawfully set." (Section 22)

Resource Management Guidelines:

(1) Any commonly used anchorage in the proposed national marine park would have fixed moorings placed and maintained by Parks Canada. These moorings should accommodate vessels up to 20 tons gross weight. Recreational boats would be encouraged to use the moorings provided and to anchor within the marine park only in designated areas or in an emergency. The numbers of moorings in a particular location would be decided on a site by site basis and in compliance with the Private Buoy Regulations under the Canada Shipping Act, or with the Navigable Waters Protection Act where interference with navigation may be possible. All dive locations, primitive campsites, and picnic sites should be equipped with permanent moorings.

(2) Consultations would be held with local fishermen to identify the need for specific regulations to avoid conflicts between visitors and fishing operations. For example, regulations could be established to prohibit recreational boating in close proximity to weirs.

(3) Pamphlets would be made available to recreational boaters visiting the proposed marine park indicating boating regulations and mooring sites and stressing the need to respect fishing boats and gear.

(4) Any direct interference with fishing gear by recreational boats would be dealt with by utilizing and enforcing existing regulations under the Fisheries Act, or new regulations, if found necessary, under the National Parks Act.

(5) Information would be provided to recreational boaters on the presence of designated areas for sport diving within the proposed marine park. This information could be given out at park entrances, marinas, visitor centres, and other points of contact with the public. In addition, the Hydrographic Service of DFO would be requested to place designated sport diving areas on its hydrographic charts.

(6) Tour boat operators would be advised to avoid interfering with commercial fishing operations. Tour boat routes would avoid areas of potential conflict with fishing operations. The rules of right of way would conform with the provisions of the Collision Regulations under the Canada Shipping Act.

3.7.2 Recreational SCUBA Diving

One of the great visitor attractions of any marine park is the opportunity to explore underwater life. SCUBA diving offers the best access to the underwater world and would be a popular activity in the proposed national marine park. However, in order to further the conservation of marine ecosystems and to minimize any potential interference with the commercial fishery, recreational SCUBA divers would not be permitted to harvest any marine organisms, dead or alive, within a national marine park.

Local fishermen have expressed concern that sport divers would poach from their fishing gear, especially lobster traps. Currently it is illegal to capture lobster using SCUBA equipment, and divers face losing their equipment and being fined if successfully prosecuted.

There is a real safety hazard for divers from surface boats. There is an international flag that divers are requested to fly when underwater. However, this is not used extensively in present practice. When divers are in an area of active fishing there is potential for conflict. Divers and lobster fishermen both frequent rocky, productive areas in the West Isles. Fortunately potential conflict is minimized by the present lobster season, which is closed from June 30 to the second Tuesday in November. This eliminates conflict during the major portion of the diving season.

Resource Management Guidelines:

(1) Recreational divers using the proposed national marine park should be required to register prior to diving.

(2) Recreational divers visiting the park would be encouraged to dive in the company of a registered dive guide.

(3) Divers would be required to fly a recognized international divers flag to warn surface boaters of their presence.

(4) Harvesting of marine organisms, dead or alive would not be permitted by divers in a national marine park.

This includes shell and scallop collecting, spearfishing and similar activities.

(5) Interference with lobster traps and other fishing gear by sport divers would be dealt with through enforcement of existing regulations.

(6) When registering, divers would be advised of all relevant regulations and potential hazards, such as the strong tidal currents.

(7) Parks Canada would promote diver safety, and would encourage certification for all divers within the park.

(8) Designated dive sites would be established by Parks Canada in consultation with the local fishing industry. It is recognized that some dive sites may only be available for specific periods to avoid conflict with the fishery.

(9) Local fishermen, tour operators and other park visitors would be given information on the location of dive sites and safety precautions to take around divers.

3.7.3 Placement of Facilities

If a national marine park is developed in the West Isles area, Parks Canada must ensure its development meets the highest of environmental standards. While it is difficult to write specific guidelines for facility placement at this time, some general guidelines are appropriate.

Resource Management Guidelines:

(1) All Parks Canada development within the proposed national marine park would have to be subjected to the Environmental Assessment and Review Process (E.A.R.P.). It is important that environmental assessments be done early in the planning stage on a conceptual level and again later on a site specific level.

(2) No developments would occur around major seabird colonies, as identified in Section 3.1 of this report.

(3) No development or activity should unduly disturb the seabird or marine mammal concentration areas. These areas include Letete Passage and Head Harbour Passage north of Popes Island out to White Horse Island and west of the Spectacle Islands.

(4) All facility development undertaken by Parks Canada would be located and operated so as to minimize any potential negative impact on the commercial fishery. The location and operating procedures of such facilities would be decided in consultation with the national marine park Public Advisory Committee.

3.7.4 Recreational Fishing

Sport fishing has been permitted in terrestrial national parks since their beginning. In the draft National Marine Parks Policy, there is no specific reference to recreational fishing, but there is a statement on fishing in general (section 2.3.1):

> "Fisheries will conitnue in marine parks, subject to protecting the ecosystem, to maintaining viable fish stocks and to attaining the purpose and objectives of the park".

Therefore, there are no philosophical or policy arguments that would exclude a recreational fishery in a marine park, within sound resource management principles.

Fishermen in the West Isles area have expressed a concern that tourists engaging in recreational fishing may disrupt their traditional fishery. Currently, a moderate groundfish fishery using longlines and small boats exists within the study area. The main activity occurs in Head Harbour Passage and the area known as the River, and there may be potential for some conflict here.

The most important concern, however, is the possibility of tourists fishing in close proximity to, or even inside, herring weirs. Provisions under Section 21 of the Fisheries Act prohibit others from fishing within a licensed apparatus such as a herring weir without the permission of the individual holding the license, and this would be enforced within a national marine park.

Resource Management Guidelines:

(1) Permits would not be required for recreational fishing.

(2) Recreational fishing would be permitted for all species of fish, with the exception of scallops.

3.7.5 Marine Mammal Observation

The observation of marine mammals or "whale watching", as it is popularly called, is

gaining popularity all over the world. Already in the Bay of Fundy there are commercial whale watching tours operating from Deer Island, Grand Manan, St. Andrews and Lubec, Maine.

The West Isles area offers excellent opportunities for whale watchers. There are a large number of species of cetaceans, ranging from the small harbour porpoise to the large finback whale. Frequency of sightings during the period of July to September is good. Most importantly, the West Isles is easily accessible, unlike most other good whale watching areas. In fact the Inner Quoddy region is one of the few parts of the world that finback whales can be studied at close quarters for extended periods using small boats (Gaskin and Smith, 1979). The West Isles area and vicinity also contains important feeding, rearing and courtship areas for the endangered North Atlantic Right Whale.

Whale watching, if not conducted properly, may cause problems for the whales and could even harm the watchers themselves. In their enthusiasm, whale watchers often get too close to whales. Boats and SCUBA divers observing or playing with the whales could disrupt their behaviour during mating or feeding and cause them to move elsewhere. Whales can be disrupted by loud noises, speeding boats or low flying aircraft.

DFO has no specific regulations regarding whale watching, but has published a set of guidelines that, if followed, would ensure whale watching is safe and that harrassment and disruption of whale behaviour would not occur.

The proposed national marine park has the potential to protect whale habitat and to provide opportunities for many Canadians to view, and better appreciate, marine mammals in their natural environment. Many species use the study area, the most important being the North Atlantic Right Whale. Management strategies would ensure the animals are not disturbed and the quality of water and ecosystem productivity remain unimpaired. The careful management of whale watching activity is a necessary measure to ensure that any potential disturbance is minimized.

Resource Management Guidelines:

(1) Tour boats, including those involved in watching cetaceans, in park waters would be required to have a tour boat license, in which regulations governing the activity would be stipulated.

(2) Whale watching activities conducted in a national marine park would be in accordance with whale watching

guidelines and/or regulations established by DFO and/or Parks Canada.

(3) Whale researchers using the proposed national marine park area would be required to submit a research proposal and have it approved by both Parks Canada and DFO. This would follow the procedure now in use in terrestrial National Parks.

3.8 SPORT HUNTING

Sport hunting in the West Isles area has been described by Hardie and Jennings (1981):

> "Hunting for deer and waterfowl are practiced by local residents and sportsmen from other parts of New Brunswick. Waterfowl hunting is geared to the taking of migratory ducks and geese although some indiscriminant hunting of cormorants and gulls does occur on occasion. It will be necessary to evaluate these activities in light of existing national park policy which prohibits such activity. Where such activities would endanger park visitors and the natural values of the park they should be terminated or consideration given to exclude heavily hunted areas from the park altogether. A case in point is the present use of the shore zone of the Mascarene Peninsula for waterfowl hunting by local residents."

The West Isles area has two seasons for waterfowl. From October 18 to January 7, licensed hunters can shoot ducks, geese (other than Brant) and snipe. The second season occurs from January 30 to February 25 when scoter, eider, oldsquaw ducks and mergansers may be shot in coastal waters only. The winter sea duck hunt takes place along the New Brunswick shore of the Bay of Fundy from Saint John to the U.S. Border.

White-tailed deer are also hunted in the West Isles area. Because the land base of the proposed marine park would be very small, however, impact on the whitetail deer hunt would be insignificant.

Parks Canada's draft National Marine Park Policy is very clear on the issue of sport hunting (Section 2.2.10):

"Sport hunting will not be permitted."

Resource Management Guidelines:

(1) Sport hunting would not be permitted within the boundaries of the proposed national marine park.

4.0 ASSESSMENT OF FEASIBILITY - RESOURCE PROTECTION AND CONSERVATION

As discussed in the introduction to this report, the primary purpose of the West Isles Feasibility Study is to determine the feasibility of establishing a national marine park in the West Isles. Of all the feasibility criteria developed at the beginning of this study, which were designed to assess the feasibility of all aspects of park establishment, those relating to resource protection and conservation are the most important.

These criteria (outlined in Section 1.3) not only relate directly to the prime mandate of Parks Canada, that of resource protection and conservation, but also reflect the majority of the concerns raised by the local residents of the West Isles in the public consultation sessions held in June, 1984. The resolution of these concerns for all parties involved is central to the determination of the feasibility of the West Isles proposal.

The assessment of feasibility outlined below represents an analysis by Parks Canada and Tourism New Brunswick of the resource concerns identified and evaluates, from the perspective of both governments, whether or not the relevant feasibility criteria can be met.

Resource Concern: Protection of Ecologically Sensitive Areas

Feasibility Criteria:

That the long term conservation of the marine resources in the proposed marine park area would be possible so as to maintain ecological processes, diversity, productivity and abundance.

That the area has experienced minimum modification by man, or, if significant modification has occurred, has potential for restoration to a natural state.

That specific (rare, unique and endangered) marine resources and habitat critical to their survival could be protected from impairment by human activities.

Feasibility Assessment

Recent scientific studies (MacKay, 1976; MacKay et al, 1978; Gaskin et al, 1979) have shown the West Isles to be an area of very high biological productivity, is an excellent representative example of the western Bay of Fundy marine region, and is certainly worthy of national marine park status. There are several sites of ecological importance, both on the islands of the archipelago and in their adjacent intertidal marine areas, that would require protection. These are indicated in Section 3.1.

While limited mining and timber harvesting has taken place on some of the islands in the past, they remain in a condition closely resembling their natural state and continue to support viable communities of native vegetation and breeding sea birds and raptors. The

intertidal marine areas, as well as the open tidal waters, still display good water quality and very high levels of biological productivity and diversity. With the possible exception of damage to benthic communities from the dragging for scallops and groundfish, and of localized incidents of water pollution from domestic sewage and small petroleum spills, the area appears to have suffered little from man's activities.

Assuming that Parks Canada would own those terrestrial sites worthy of protection, and co-operation would be forthcoming from DFO and the local fishermen, there would appear to be every opportunity to conserve and protect the significant natural resource features of the West Isles.

Resource Concern: Commerical Resource Harvesting

Feasibility Criteria:
That the commercial, recreational and domestic fisheries would be able to continue and any potential conflicts between the fisheries and the purpose and objectives of a national marine park could be resolved to the satisfaction of all parties concerned.

That commercial fishing practices that are destructive to the sea bed could be minimized.

That the natural resources of the proposed national marine park could be managed so that man's activities will leave them unimpaired for future generations.

Feasibility Assessment:

The waters of the West Isles study area comprise one of the most productive commercial fisheries in the inshore of coastal New Brunswick. Parks Canada and Tourism New Brunswick have recognized from the outset that a national marine park proposal for the West Isles must incorporate the continuation of this fishery.

The area is particularly important for its herring, lobster and groundfish fisheries. Other fisheries of lesser importance also exist for scallops, with the occasional harvesting of dulse and clams. An aquaculture industry is also in the early stages of development.

The recommended Resource Management Guidelines provide for the continuation of these fisheries. Parks Canada has, however, expressed a concern over the possible detrimental effects of three methods of commercial harvesting on marine habitats. These are:

1) dragging for groundfish
2) dragging for scallops
3) groundfish gillnetting

Section 3.2.6 of the draft National Marine Parks Policy has been uniformly applied to these three fisheries concerns:

"Parks Canada will work cooperatively with the Department of Fisheries and Oceans and the fishing industry to minimize indiscriminate methods of fishing and the use of gear which is destructive to the sea bed. Where adverse effects on marine habitats and

ecosystems are suspected, monitoring studies will be initiated to assess the extent of the problem. If significant effects are identified, Parks Canada will work closely with the Department of Fisheries and Oceans and the fishing industry in order to develop management solutions which are mutually acceptable. Such solutions will become part of the negotiated park fisheries management plan."

Thus, upon park establishment, the existing fisheries management regime would remain unchanged. Further research would then be conducted, if required, to assess the environmental impact of these three fisheries and appropriate management actions would be negotiated to resolve them.

Another issue closely related to the commercial fishery is the management of the West Isles' seal population. Parks Canada does not consider the indiscriminate shooting of seals to be an appropriate activity within a national marine park. It is recognized, however, that seals do pose a serious problem for weir fishermen and aquaculturalists. A management plan for seals would be prepared to establish measures to minimize losses and damage to gear. In the interim, commercial fishermen would continue to be able to shoot seals that are in the act of causing damage or loss to a fishermen's gear or catch. Overall management of the seal population would remain the responsibility of DFO, with Parks Canada's assistance.

The management of the commercial fishery within a national marine park would continue to be the

responsibility of DFO, and would be conducted in accordance with an approved park fisheries management plan prepared by DFO and Parks Canada, in consultation with the local fishing industry. This plan would be prepared in accordance with the regional fisheries management plans prepared by DFO and would apply specific management guidelines related to park management matters and the interaction between the management and operation of a national marine park and the commercial fishery.

Parks Canada is confident that, with the provisions noted above and as specified in the guidelines, the continuation of the commercial fishery would not preclude the attainment of the purpose and objectives of a national marine park. It is believed that Parks Canada and the commercial fishing industry share a common concern for the conservation of the West Isles' marine resources.

Resource Concern: Management of Water Quality

Feasibility Criterion:
That the existence of possible threats to the natural environment of the area, particularly with regard to water quality are minimal and could be retained at an acceptable and manageable level.

Feasibility Assessment:
While there are localized incidents of water pollution due to domestic sewage disposal, fish offal waste disposal, and the improper discharge of oil and gasoline, the water quality of the West Isles area

remains high. The most significant long term threats to water quality are higher pollution levels entering Passamaquoddy Bay via the St. Croix River and Letang Inlet. At present, neither is having a direct impact on the study area.

Parks Canada would co-operate with other federal and provincial agencies to monitor water quality and to take whatever mitigative measures are considered necessary to retain high levels of water quality. The retention of good water quality in the West Isles should be feasible if this cooperation is effective.

Resource Concern: Effects of Increased Visitation on Non-Park Areas

Feasibility Criterion:
That the impact of increased visitation to a national marine park in the West Isles on adjacent non-park areas could be minimized to an acceptable and manageable level.

Feasibility Assessment:
From a resource protection and conservation standpoint, this concern relates primarily to the potential increased harvesting of fish species, clams and scallops in particular, but other species as well, in non-park areas adjacent to a park due to increased visitation to the area caused by a park. With the recreational harvest of scallops not being allowed in the proposed park, there is a concern that an increased harvest would take place beyond park boundaries. There is also a concern that there would be an increased rate of the theft of lobsters and lobster traps outside the proposed park.

Parks Canada's experience, particularly from Kouchibouguac, is that regional impacts of this nature are minimal or non-existant. In any event, DFO regulations are in effect to regulate this harvest and any infractions would continue to be enforced by Fisheries Officers. Parks Canada would endeavour to assist regulatory authorities whenever possible.

Resource Concern: Management of Potential New Fisheries

Feasibility Criterion:
That the natural resources of the proposed national marine park could be managed so that man's activities will leave them unimpaired for future generations.

Feasibility Assessement:
With the exception of aquaculture, there would appear to be limited potential for the commencement of any new significant fishery in the West Isles. However, any new proposal would be considered by Parks Canada and DFO subject to the approved park fisheries management plan, in consultation with the local fishing industry. It would not be the intention of a national marine park to stop the evolution of the commercial fishing industry or do have a detrimental effect on its continued viability.

This is a highly manageable situation and would appear to present no foreseeable problems for ongoing park management.

Resource Concern: Local Non-Commercial Resource Harvesting

Feasibility Criterion:
That the natural resources of the proposed national marine park could be managed so that man's activities will leave them unimpaired for future generations.

Feasibility Assessment:
This concern relates to the future availability of marine resources within park boundaries to local residents for domestic consumption. Local consumption is not high and the possibility of over-harvesting is remote. This is not anticipated to be a management problem.

Resource Concern: Commerical Shipping

Feasilbility Criterion:
That the existence of possible threats to the natural environment of the area, particularly with regard to water quality are minimal and could be retained at an acceptance and manageable level.

Feasibility Assessment:
Commercial shipping traffic using West Isles waters at the present time is relatively low and any increase is expected to be marginal. The cargo being shipped presents little environmental risk. Transport Canada would continue to administer commercial shipping in a national marine park.

It would appear to be entirely feasible for commercial shipping to be managed in a manner comptable with the presence of a national marine park.

Resource Concern: Management of Park Visitor Activities

Feasibility Criterion:
That the commercial, recreational and domestic fisheries would be able to continue and any potential conflicts between the fisheries and the purpose and objectives of a national marine park could be resolved to the satisfaction of all parties concerned.

Feasibility Assessment:
The activities of recreational boating, including tour boats, SCUBA diving and recreational fishing will occupy most of park visitors' time spent on the water. The principle resource concern in this regard is their potential impact on the commercial fishery. There are existing regulations under the Fisheries Act to assist in the regulation of these recreational activities, and any new regulations that may be required specific to park management could be promulgated under the National Parks Act.

Parks Canada is confident that, with the appropriate information, interpretation and education programs, and the necessary regulations, any potential conflicts between park visitor activities and commercial fishing could be minimized.

Resource Concern: Sport Hunting

Feasibility Criterion:
That sport hunting within the proposed national marine park could be discontinued.

Feasibility Assessment:
It is Parks Canada policy that there will be no hunting in National Parks and national marine parks.

A national marine park in the West Isles would have a negligible effect on the hunting of terrestrial mammals. Some opportunity would be lost to hunt migratory birds, although the extent of this loss would not be great.

REFERENCES

Anon. 1985. National Marine Parks Final Draft Policy, May 1, 1985. National Parks Systems Division, National Parks Branch, Parks Canada, Ottawa, 29p.

Anon. 1975. Lobster Fishery Task Force. Final Report. Fisheries and Oceans Canada.

Anthony, V.C. and J.F. Caddy (eds.) 1980. Proceedings of the Canada - U.S. Workshop on Status of Assessment Science for N.W. Atlantic Lobster (Homarus americanus) Stocks. Can. Tech. Rept. Fish Aquat. Sci. 932, 186p.

Baxter, M.D. and G. Julien 1977. A Sanitary and Bacteriological Survey, Campobello Island, N.B. Shellfish Area N.B. 18. Environmental Protection Service, Halifax, N.S.

Brown, K. 1982. Commercial Fishing and National Marine Parks, Vols. I and II. Natural Resources Division, National Parks Branch, Parks Canada, Ottawa, 393p., 78p.

Caddy, J.F. 1973. "Underwater Observations on Tracks of Dredges and Trawls and Some Effects of Dredging on a Scallop Ground". J. Fish. Research Board, Canada 30: 173-180.

Caddy, J.F., R.A. Chandler and D.G. Wilder, 1974. "Biology and Commercial Potential of Several Underexploited Molluscs and Crustaceans of the Atlantic Coast of Canada". Proc. Government - Industry Meetings on the Utilization of Atlantic Marine Resources, Feb. 5-7, p. 67-106.

Christie, D.S., 1983. "Birds". In: Marine and Coastal Systems of the Quoddy Region, New Brunswick. M.L.H. Thomas ed. Chapter 14, pp. 215-229. Department of Fisheries and Oceans, Ottawa.

Cook, R. 1976. Periwinkle Survey. Grand Manan Island. Rep. to New Brunswick Department of Fisheries, St. Andrews, N.B.

Department of Fisheries and Oceans, 1983. Watching Whales. Communications Directorate, Ottawa.

Elner, R.W. 1980. "Lobster gear selectivity - a Canadian overview". In: Anthony, V.C. and J.F. Caddy (eds.) 1980.

Gaskin, D.E. and G.J.D. Smith, 1979. Observations on Marine Mammals, Birds and Environmental Conditions in the Head Harbour Region of the Bay of Fundy. Fisheries and Marine Services, Tech. Rep. No. 901. St. Andrew's N.B.

Grey, R.W., D.L. Morantz and J.D. Carmeron, 1980. Size, Distribution, and Significance of the Commercial By-catch of Atlantic Salmon (Salmo salar) in mainland Nova Scotia. Can. Ms. Rept. Fish Aquat. Sci. No. 1583, 39p.

Hardie, D. and Jennings, S., 1981. National Marine Park Concept, West Isles, New Brunswick Pilot Study, Vols. 1 and 2. National Parks Systems Planning, National Parks Branch, Parks Canada, Ottawa, 109p., 87p.

International Union for Conservation of Nature. 1981. World Conservation Strategy. IUCN. 1196 Gland, Switzerland.

Johnson, Bruce, 1984. Canadian Wildlife Service, Sackville, N.B. Personal Communication.

MacKay, A.A., 1976. A Comparative Resource Analysis of the Deer Island and Grand Manan Archipelagos, Bay of Fundy. Final Report to Parks Canada, Ottawa, 177p.

MacKay, A.A. and R.K. Bosien. 1979. Bay of Fundy Resource Inventory - Volume 5. The Wolves. Final Report to N.B. Department of Fisheries, Fredericton, N.B.

MacKay A.A. and R.K. Bosien, and B. Wells, 1978. Bay of Fundy Resource Inventory - Volume 3. Deer Island - Campobello Island. Final Report to the N.B. Department of Fisheries, Fredericton, N.B.

Maritime Resource Management Service, 1982. Passamaquoddy Marine Resource Pilot Study - Fisheries. Amherst, N.S.

Matthews, Burris. 1984. East Quoddy Marine Pilots. Personal Communication.

New Brunswick Department of Fisheries, 1983. Unpublished fisheries statistics, Bay of Fundy.

Neish, I.C., 1976. Distribution of Kelp and Other Commercially Useful Marine Algae in Charlotte County, New Brunswick. Applied Marine Research Ltd., Halifax, N.S.

Piatt, J. 1981. Seabirds of Newfoundland and Labrador. CWS and Mem. University of Nfld. Pamphlet.

Scarratt, D.J. 1984. Assistant Director, St. Andrews Biological Station, Dept. of Fisheries and Oceans. Personal Communication.

Smolowity, R.J. 1978; "Lobster, Homarus americanus, trap design and ghost fishing". Mar. Fish. Rev. 40 (5-6): 2-8.

Spencer, B. 1984. Chief of Visitor Services, Kouchibouguac Nat. Park N.B. Personal Communication.

Trudeau, H. 1984. Area Manager, Bay of Fundy, Fisheries and Oceans Canada. Personal Communication.

Von Brant, A. 1964. Fish Catching Methods of the World. Fish. News. Ltd., London 191 p.

Wilder, D.G. 1943. The Effect of Lath Spacing and Size of Fishing Ring on the Catch of Lobster Traps. Fish. Res. Bd. Canada Prog. Rep. Atl. Coast Stn. 34:22-24.

Wilder, D.G. 1945. Wider Lath Spaces Protect Short Lobsters. Fish. Res. Bd. Canada, Atl. Biol. Stn. Circ. 4, 1p.